# AMS LCT

# Software Operation Guide

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|---|---|
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*AMS LCT*
*Software Operation Guide*
Text Part Number: 2105-0200

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# Chapter 1Preface

This preface describes the "*AMS LCT Software Operation Guide*" about how it is organized, and its document conventions. It contains the following topics.

- Purpose
- Organization
- Conventions
- Revision History

## Purpose

The purpose of this guide is to provide detailed information and description of AMS (Advanced Management System) LCT(Local Craft Terminal) software, despite the variation in experience of the technicians. This document is intended to help them to operate the software and connect the D-Link DAS4 Series IP-DSLAM to the network as quickly as possible.

## Organization

This guide contains the following chapters:

- Preface
- DAS4 Series Management System Overview
- Getting Started AMS
- Initiating the NE
- Profile Management
- Interface Port Management
- Connection Port Management
- Fast Provision Management
- Performance Management
- Fault Management
- Diagnosis Management
- General System Management
- Administrating and Maintenance
- Abbreviations and Acronyms
- Alarm Definition

## Conventions

This section describes the conventions used in this guide.

**NE/NEs** mentioned in this document means DAS4 Series IP-DSLAM. unless specifically indicated..

**ADSL** mentioned in this document covers ADSL, ADSL2, and ADSL2+, unless specifically indicated. The **ADSL** specified in this document complies with ITU-T Rec. G.992.1, G.992.2, G.992.3 and G.992.5.

**SHDSL** mentioned in this document complies with ITU-T Rec. G.991.2,

**xDSL** hereinafter is referred as both the ADSL and SHDSL, unless specifically indicated.

**CLI Ex** – The command line management with a local console or Telnet through in-band or out-of-band IP interface for CIT (Craft Interface Terminal) connection.

This sign indicates the **NOTICE**. A note contains helpful suggestions or reference relay on the topical subjects.

This sign indicates the **TIP**. Performing the information described in the paragraph will help you solve a problem. The tip information might not be troubleshooting or even an action, but could be useful information.

This sign indicates the **CAUTION**. In this situation, you might do something that could result in equipment damage or loss of data.

**This sign indicates the DANGER. You are in situation that could cause bodily injury. Before you work on any equipment, you must be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.**

## Revision History

1) Revision Date: 2007/5/18
Release version:1.1.3
Author: Julia Shen
Summary of Change(s):
(1) "Figure 3-1 AMS LCT Login Dialog" is changed due to typo-error.
(2) "Figure 3-7 Export Dialog" and its corresponding Table 3-2 are changed due to typo-error.
(3) "Figure 4-20 NE System Time" and its corresponding Table 4-15 are changed to add parameter "*unit:hour*" in Time Zone
(4) "Figure 4-22 NE Time Server Status Dialog" and its corresponding Table 4-17 are changed due to typo-error.
(5) "Figure 5-36 Add Traffic Policing Profile Dialog" and its corresponding Table 5-27 are changed to remove the parameter "*PIR*".
(6) "Figure 8-89 xDSL Port & VC-to-VLAN Fast Provision – Port Setting Dialog" and its corresponding Table 8-66 are changed to remove the parameter "*wireless function*".
(7) "Figure 6-57 Link Aggregation Setting Dialog" and its corresponding Table 6-42 are changed due to typo-error.
(8) "Figure 6-58 Trunk RSTP Setting– Bridge Dialog" and its corresponding Table 6-43 are changed due to typo-error.
(9) "Table 7-56 xDSL Multicast Channel Setting Description" is changed to improve the readability.
(10)"Table 8-68 xDSL Multicast Channel Fast Provision Description" is changed to improve the readability.
(11)"Table 8-69 xDSL Multicast Channel Fast Provision List Dialog Description" is changed to improve the readability.
(12)"Table 10-77 NE Relay Input List Dialog Description" and its corresponding are changed due to typo-error.

(13)"Table 10-79 Hardware Monitoring List Dialog Description" and its corresponding are changed due to typo-error.
(14)"Figure 11-128 MAC Spoofing Status List Dialog" and its corresponding are changed due to typo-error.
(15)"Figure 11-130 Multicast Group Membership List Dialog" and its corresponding are changed due to typo-error.
(16)The titles of Figure 11-132 and Table 11-91 are changed to improve the readability.
(17)"Figure 11-133 Current Status of Rapid Spanning Tree Protocol – Bridge Dialog" and its corresponding Table 11-92 are changed due to typo-error.
(18) "Figure 13-143 NE SHDSL Firmware Upgrade Dialog" and its corresponding are changed due to typo-error.

2) Revision Date: 2007/5/28
Release version: 1.1.3
Author: Julia Shen
Summary of Change(s):
(1) "Figure 6-52 ADSL Port Modification Dialog" and Table 6-38 are changed to improve the readability.
(2) "Figure 6-53 SHDSL Port Modification Dialog" and Table 6-39 are changed to improve the readability.
(3) "Figure 10-111 NE Relay Input Modification Dialog" and Table 10-78 are changed to improve the readability.

3) Revision Date: 2007/7/16
Release version: 1.1.4
Author: William Fu
Summary of Change(s):
(1) Replace Appendix C "index" with "Quick Configuration Guide for LCT"

4) Revision Date: 2007/10/01
Release version: 1.1.5
Author: William Fu
Summary of Change(s):
(1) Add descriptions of 802.1Q tagged mode in Section "Constructing the NE Objects" and modify/add the following tables. (CWFu)
Table 4-4 Board Setting List Description
Table 4-5 Board Setting Dialog Description
Table 4-6 The NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters.
(2) Add sub-section "Manual VLAN Setting" to describe the manual VLAN setting for when the 2nd GE port is enabled to work as a subtended port in Section "GE Network Interface Management"

5) Revision Date: 2007/10/12
Release version: 1.1.6
Author: Julia Shen
Summary of Change(s):
(1) "Figure 4-16 NE User Account List Dialog"is changed to improve the readability.
(2) "Figure 5-32 ADSL Line Profile– INP Dialog" is changed due to typo-error.

(3) “Figure 7-81MAC Aging Setting Dialog” and its corresponding Table 7-58 are changed to remove the parameter “*Admin Sratus*”.And move “MAC Aging” menu item from “xDSL” to “NE Management”.
(4) “Figure 7-82 VLAN MAC Limit List Dialog” is changed to add the option that shows LC’s information and its corresponding Table 7-59 is changed to add the parameter “*Rsfresh*”.
(5) “Table 5-35” is changed to improve the readability.
(6) Change the name of “ISP server” to “Next-hop”and change the following table and figures.
Figure 7-65 xDSL VC-to-VLAN Setting – IP Traffic Dialog-(b).
Figure 7-67 xDSL VC-to-VLAN Setting – 802.1P Dialog (only for the RFC2684 routed mode).
Figure 7-69 xDSL VC-to-VLAN Setting – Next-hop Dialog (only for the RFC2684 routed mode).
Figure 7-70 xDSL VC-to-VLAN Setting – Service Type Dialog-(d).
Table 7-49 xDSL VC-to-VLAN Setting Description.
Figure 8-90 xDSL Port & VC-to-VLAN Fast Provision – Channel Setting Dialog-(b)
Figure 8-93 xDSL Port & VC-to-VLAN Fast Provision – Next-hop Dialog (only for the RFC2684 routed mode)
Figure 8-95 xDSL Port & VC-to-VLAN Fast Provision – Service Type Dialog-(d)
Table 8-66 xDSL Port & VC-to-VLAN Fast Provision Description
Figure 8-96 xDSL Fast Provision List Dialog
Table 8-67 xDSL Fast Provision List Dialog Description
(7) “Figure 8-95-(a), (b), (c)” are changed to improve the readability.
(8) Change the name of “Mac Limit” to “Channel Limit”and change the following table and figures.
Figure 7-79 xDSL Multicast Channel Setting Dialog
Table 7-56 xDSL Multicast Channel Setting Description
Figure 8-97 xDSL Multicast Channel Fast Provision – Multicast Service Profile Dialog
Figure 8-98 xDSL Multicast Channel Fast Provision – Channel Limit Dialog
Table 8-68 xDSL Multicast Channel Fast Provision Description
(9) Change the name of “Stream Count” to “Channel Limit”and change the following table and figures.
Figure 7-79 xDSL Multicast Channel Setting Dialog
Table 7-56 xDSL Multicast Channel Setting Description
Figure 8-98 xDSL Multicast Channel Fast Provision – Channel Limit Dialog
Table 8-68 xDSL Multicast Channel Fast Provision Description
Figure 8-99 xDSL Multicast Channel Fast Provision List Dialog
Table 8-69 xDSL Multicast Channel Fast Provision List Dialog Description

# Chapter 2DAS4 Series Management System Overview

This chapter describes the AMS LCT user interface. This chapter contains the following sections:

- AMS LCT Overview
- AMS LCT Feature
- System Hardware and Software Requirement

## AMS LCT Overview

AMS LCT is designed according to the following principles:

- Monitor and configure the network in real-time such as diagnostics, status gathering, service provision and NE reset
- Easy to maintain. The AMS LCT is designed on the PC platform and is compatible to Microsoft Windows 98SE/ME/2000/XP
- Easy to operate. The AMS LCT provides user-friendly configuration interface
- Various alarm severity levels are provided for all possible events/conditions

## AMS LCT Features

The AMS LCT system supports various functions for the effective operation and maintenance of the NE. The system supports, fault management (FM), performance management (PM), configuration management (CM), and security management (SM) of DAS4 Series IP-DSLAM.

**Real-time System Status Monitoring**

The AMS LCT collects the SNMP traps for the discrete alarm, faceplate LEDs, and system failures in real time for monitoring and displays of the xDSL and network interfaces, and Fan, Power, and Alarm relay status.

The NE indicated with colors for different status by GUI interface. Any addition and deletion of element or plug-in unit of NE will automatically detect and reflected in AMS LCT.

**Administration**

Administrative function allows operator to plan or manage their NEs on the network.

**Error Handling**

When execution is not successful, error message will be displayed, and the operator has to configure problem entries and the process before proceeding further.

AMS LCT support function to depict the failure status of the NE in registered manage network.

## System Hardware and Software Requirement

AMS LCT is designed on a high stability and reliability platform, for performing fluent in management. The AMS LCT recommends the hardware/software in list below to achieve the performance.

**The recommend hardware & OS for AMS LCT:**

- Pentium 4 1.6 GHz or higher
- 256 MB RAM
- 40 GB Hard disk
- 10/100 Base-T Ethernet network card

**The Software require for AMS LCT System:**

- Operating System – Microsoft Windows 98SE/ME/2000/XP (2000 is recommend)
- AMS Installation Package

# Chapter 3Getting Started AMS LCT

This chapter describes on how to install the AMS LCT, and provides the general navigating concept of AMS LCT to help you to quickly handle it.

This chapter contains the following sections:

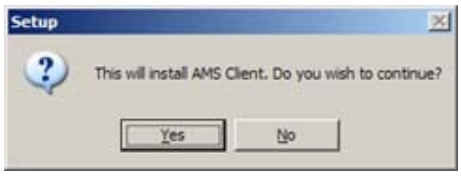
- Installing the AMS LCT
- Starting AMS LCT Session
- Navigating in AMS Client
- Managing the Trap Log View
- Icon and LED Sign Overview
- Error Handling Dialog
- Data Exporting and Graphic Displaying

## Installing the AMS LCT

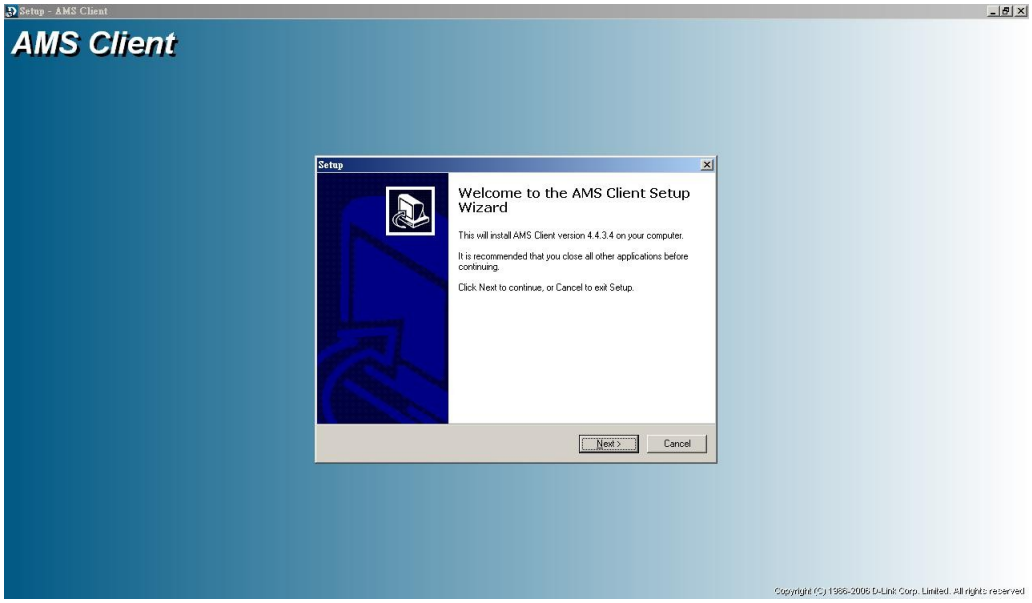
Before installing the AMS LCT software, please make sure both of your requirement of hardware and software are completed with recommend specification list in “Chapter 2 System Hardware and Software Requirement”.

**Step 1** Insert the ‘AMS Installation Package’ CD to your CD/DVD driver, from the directory of ‘**AMS_LCT**’ double click on the ‘**AMS_GUI_LCT_setupVx.x.x.x**’ executable file.

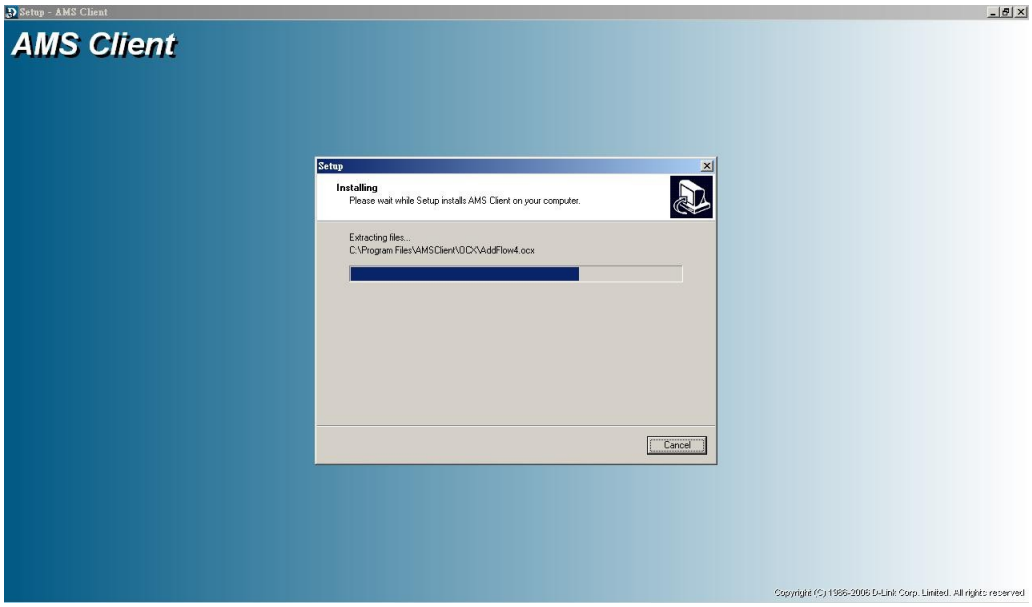

**Step 2** Select ‘Yes’ from the launched window to continuous the installation.



**Step 3** Click the ‘Next’ button to start the setup wizard.




**Step 4** Identify the program directory and additional task before processing installation.




**Step 5** Once the installation is completed, you will have an ‘AMS Client’ icon on your desktop; double click this icon to run the AMS Client software.

**Step 6** Double click this icon on desktop to run the AMS Client software.


## Starting a AMS LCT Session

Double click the ‘AMS Client’ icon on your desktop to launch the AMS LCT login dialog.

Use default user and community to access with read-write privilege.

User: **admin**

Community: **netman**

For default read-only privilege using:

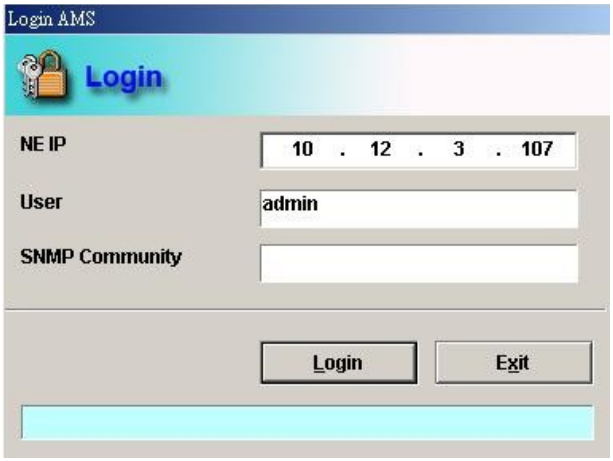
User: **guest**
Community: **public**

You can change the login account and privilege from CLI Ex mode or later from AMS LCT.

To start an AMS LCT session, follow these steps.

**Step 1** Open AMS LCT session by double clicking the 'AMS Client' icon on the MS-Windows.
The Login window appears.

**Figure 3-1 AMS LCT Login Dialog**




**Step 2** Specify NE IP address and enter the associated user name and SNMP community.

**Step 3** Click **Login** to proceed.
If you enter an unknown user name or invalid community, the system will display an error message. To continue, click **OK**, and then enter a valid user name and SNMP community.
When you enter a valid user name and SNMP community, the session starts and the AMS LCT application appears.

NOTE Both the user name and SNMP community are case-sensitive.

NOTE If you don't have any account creates initially or you have trouble to login, please refer to DAS4 Series System Configuration Guide *"Chapter 2 Managing the Session Login Account"* to managing the user account, also refer to *"Chapter 3 Configuring the SNMP Manager"* to managing the SNMP community.

# Navigating of AMS LCT

AMS LCT software uses familiar functionality and menus found in most MS-Windows-based graphical user interface. This section describes the functions available in AMS LCT.

## Keyboard Commands

Certain Keyboard commands are available in AMS LCT. These commands serve as an alternative

to mouse functionality.

| Keyboard Command | Description |
|---|---|
| **Operation** | |
| Tab | Move among the fields in a window/dialog. |
| Arrow Keys | Scroll through the text in a data entry field or through the values of a list box. |
| Alt Key | Access a menu by typing the appropriate keyboard command. |

## Right Mouse Button

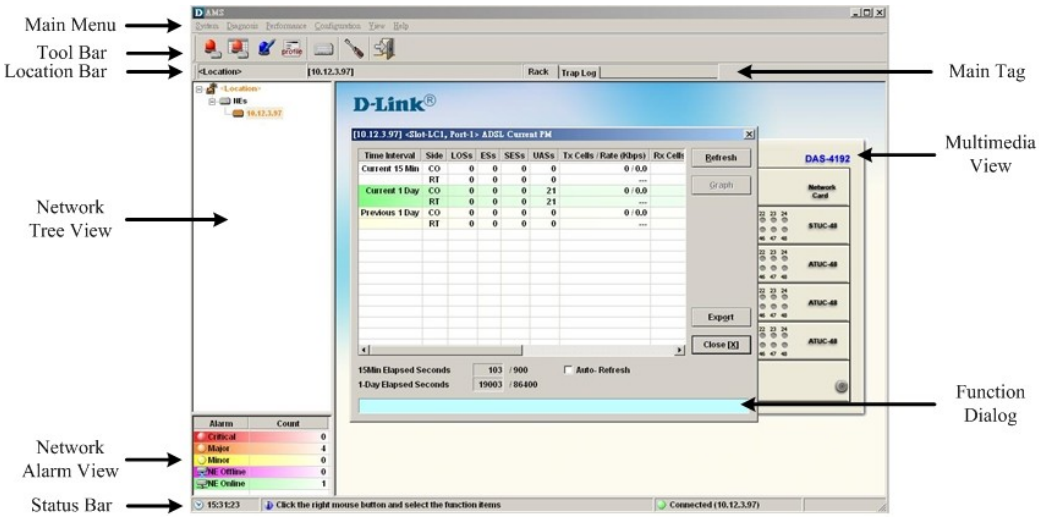
AMS LCT software provides right-click mouse functionality. By positioning the mouse cursor over an "NE object", you can click the right mouse button to view the launched **Function Menu**. The **Function Menu** options available depend on selected "NE object". You can then use the left or right mouse button to open the associated function dialog window.

The "NE object" denotes the NE entity, Shelf, Slot/Box, and Port displaying on the Rack tab of Multimedia View area or Network Tree View area.

## AMS LCT Window Overview

The AMS LCT Operation window contains several parts; each part varies depending on the window in which you are viewing or configuring.

**Figure 3-2 AMS LCT Operation Window**




# Managing the Trap Log View

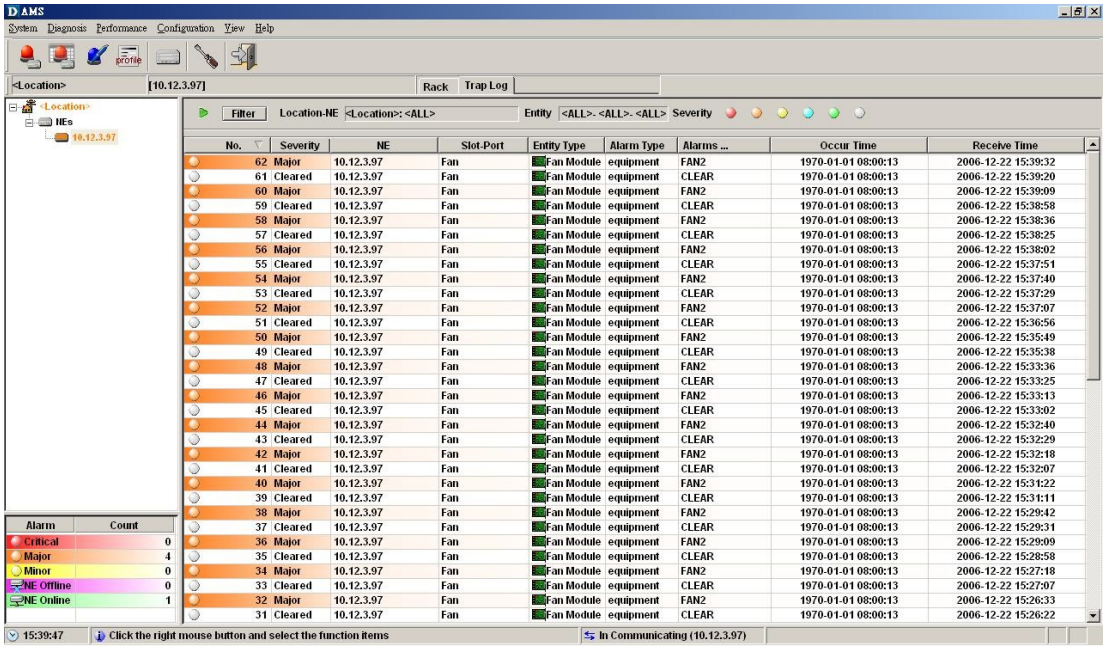
Click the '**Trap Log**' tab view to display the system trap (alarm) information.

The NE would send SNMP traps to a designated host IP address when there is one or more status are changed. The "Trap Log" records and saves the SNMP traps on the host which is specified a trap station since the host logged in LCT.

Operator will not see the trap logs on LCT if the host IP address is not one of the trap stations.

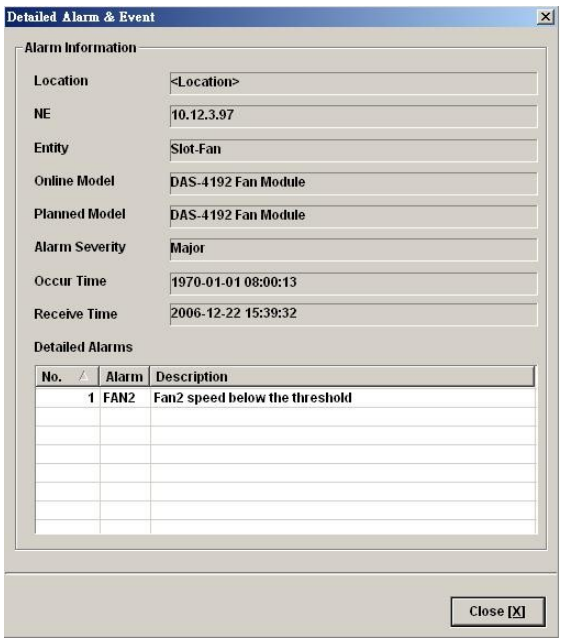
Chapter 4 "Configuring the SNMP Trap Manager" shows you how to configure the SNMP trap station.

**Figure 3-3 AMS LCT Trap Log View**




Select a specific trap from **List Table** and using right mouse button to launch the **Function Menu**, select '**Detail**' to view the detailed alarm & event dialog.

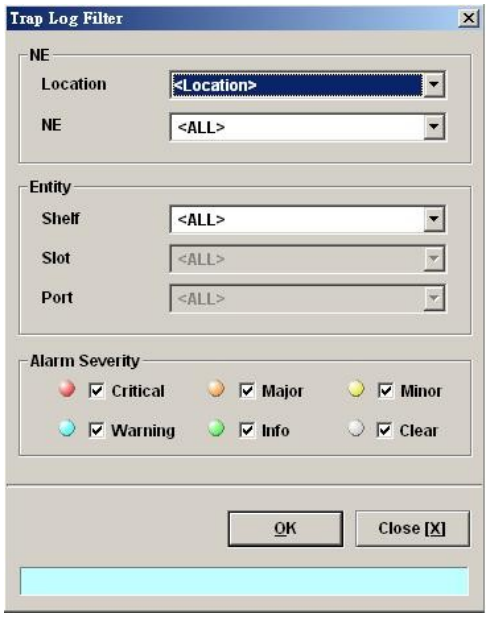
**Figure 3-4 Detailed Alarm & Event Dialog**




You can also select the '**Pause**' or '**Reset**' from launched **Function Menu** to stop refreshing traps or clearing all traps cached in the AMS LCT.

Click the '**Filter**' button at top-left corner of '**Trap Log**' tab view to open the Trap Log Filter dialog. Here you can define the rule of showing filtering new coming traps. This is a useful tool to filter out unnecessary traps.

**Figure 3-5 Trap Log Filter Dialog**




## Icons and LED Sign Overview

Table 3-1 lists the icons and LED signs used inside the AMS LCT.

**Table 3-1 Icon and LED Sign Description**

| Symbol | Description |
|---|---|
| **Tool Combo-box** | |
|  | System active alarm (current alarm). |
|  | System history alarm (history alarm). |
|  | System alarm profile (alarm definition). |
|   | System profile configuration. |
|  | NE management. |
|  | AMS LCT Options. |
|  | Exit AMS LCT. |

**Table 3-1 Icon and LED Sign Description (Continued)**

| Symbol | Description |
|---|---|
| **Status Combo-box** | |
|  | Hint information. |
|  | PC data and time. |
|  | Connection status. ( idle, disconnected, in communication) |
| **Network List View** | |
|  | NE contains critical alarm |
|  | NE contains major alarm |
|  | NE contains minor alarm |
|  | NE contains events |
|  | NE is in normal status |
| **Network Alarm View** | |
|  | Critical Alarm |
|  | Major Alarm |
|  | Minor Alarm |
|  | NE offline |
|  | NE online |
| **Rack View** | |
|  | Port disable or no such profile |
|  | Port contains critical alarm |
|  | Port contains major alarm |
|  | Port contains minor alarm |
|  | Port contains warning alarm |
|  | Port contains no alarm / Port linked |
|  | NC card in working mode (DAS4672 only) |
|  | NC card in standby mode (DAS4672 only) |
|  | NC / LC card type is mismatch |
|  | NC / LC card not exist |
| | The LC board is operated in VLAN tag Pass-through enable mode. |
| | The LC board is operated in VC MUX mode. |
| **Trap Log View** | |
|  | Current Critical alarm |
|  | Current Major alarm |
|  | Current Minor alarm |
|  | Current Event alarm |
|  | Alarm clear / No alarm |
|  | Identify as card alarm |
|  | Identify as port alarm |

**Table 3-1 Icon and LED Sign Description (Continued)**

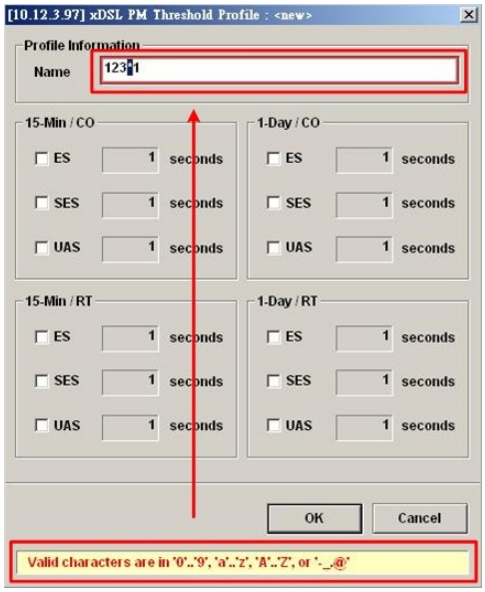
| Symbol | Description |
|---|---|
| **Function Dialog** | |
| | Indicates data in list table is active and valid. |
| | Indicates data in list table is inactive or invalid. |
| | Indicates the status of specific port in list table is link up. |
| | Indicates the status of specific port in list table is link down. |
| | Indicates the status of task is finished. |
| | Indicates the status of task is successful. |
| | Indicates the status of task is failed. |
| | Indicates the item is checked. |
| | Indicates the item is unchecked. |
| | Indicates the field is sorted by ascendant order in list table. |
| | Indicates the field is sorted by descendant order in list table. |
| | Indicates the field is sorted by another field in list table. |

## Error Handling Dialog

AMS LCT provides the error handling dialog. Each dialog has a text block at button edge, this text block will shown error message and highlight the red rectangle at specifics box where contains invalid or illogical parameter. You must fix the error to proceed with the task.

The following figure depicts the example on how dialog performs the error handling.

**Figure 3-6 Error Handling Message**



# Data Exporting and Graphic Displaying

AMS LCT provides the data exporting of dialog List Table information.

**Figure 3-7 Export Dialog**

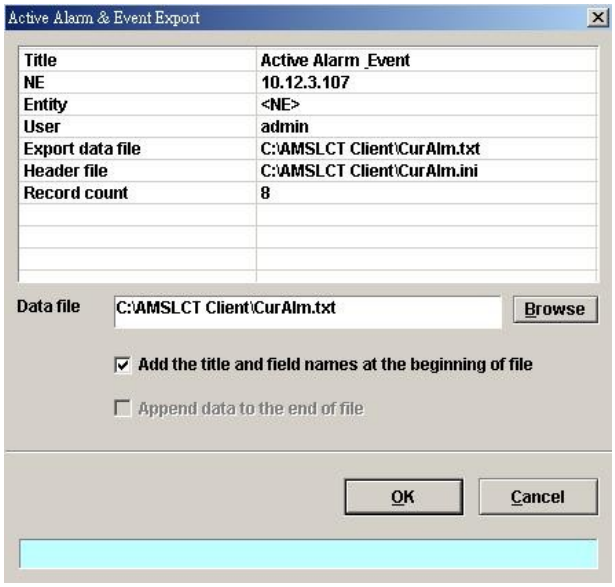



**Table 3-2 Export Dialog Description**

| Field | Description |
|---|---|
| Data file | Data file location |
| Add the title and field names at the beginning of file | Check to add the title and field names in the front of output file. |
| Append data to the end of file | Check to append data to the end of output file. |
| Browse | Click to select the output file by way of file manager. |

**Figure 3-8 2D/3D Data Graph Displaying Dialog**

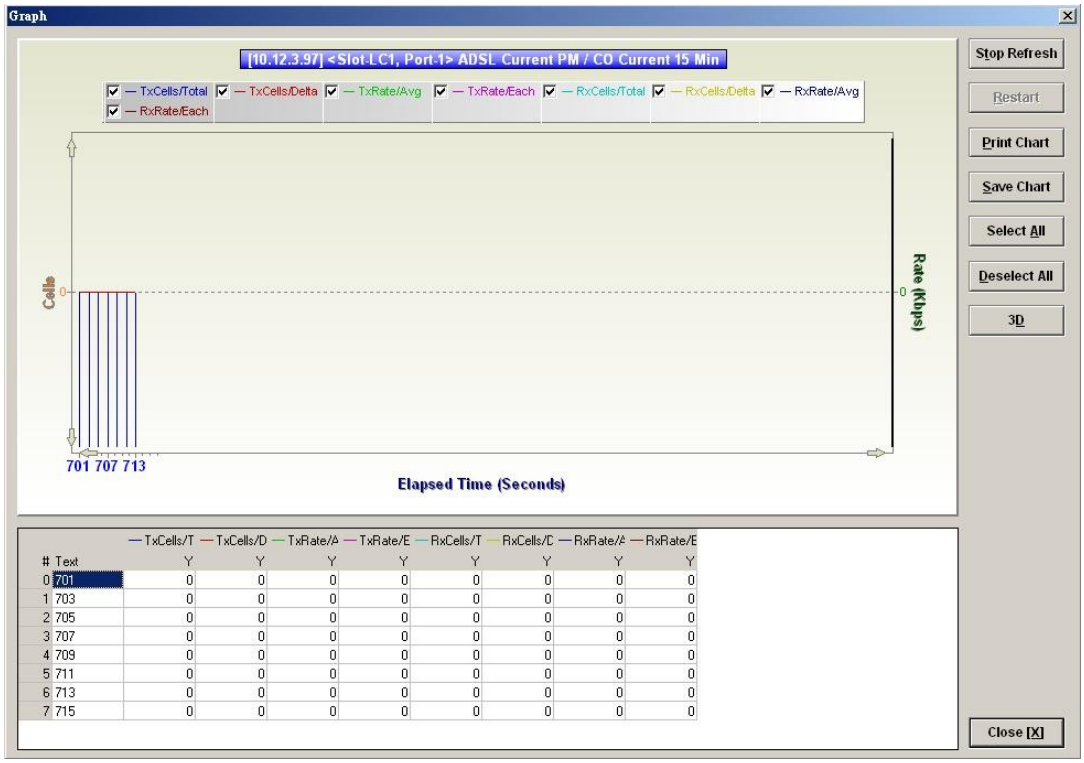



**Table 3-3 2D/3D Data Graph Displaying Dialog Description**

| Field | Description |
|---|---|
| Print Chart | Click to print the chart diagram |
| Save Chart | Click to save the chart diagram in file. |
| Select All | Click to check all linear elements. |
| Deselect All | Click to uncheck all linear elements. |
| 3D/2D | Click to toggle the style of chart diagram. |
| Close | Exit the data graph displaying Dialog. |

# Chapter 4Initiating the NE

This chapter describes how to initially configure the DAS4 Series IP-DSLAMs before the advanced configuration depicted in the rest of this document.

This chapter contains the following sections:

- Constructing the NE Objects
- NE SNMP Management
- User Account Management
- Secured Host Management
- DNS Server Setting
- Time Server Setting
- NE Date and Time Management
- Saving the NE Configuration

## Constructing the NE Objects

As the DAS4 Series IP-DSLAM provides the flexibility to be equipped with various card modules such as ADSL-LC (Line Card) and SHDSL-LC, constructing the NE board type of card module is the first task you need to perform.

Once the card modules to be equipped to the DAS4 Series IP-DSLAM are determined, you need to set the planned type according to their correspondent slot to secure the system operation. For any reason (removed or type error), if the planned type is not the same as the online type detected from the system, the board mismatch alarm message will be reported to AMS LCT and the configured AMS Server..

The NE supports the following functions on a per LC/NC basis.

- Planning the card type of a LC slot
  To ease the operator to plan the usage of each LC slot in advance, the NE support to configure the planned type of a LC slot. There will be an alarm arise if the planned card type and the actual plug-in card type are different.
- RFC 2684 encapsulation method for ADSL line card, either LLC or VCMUX.
- "Service Type Control" for ADSL line card.
  Operator can define the service which allow user to pass, they are "DHCP", "PPPoE" and "Static IP".
- VLAN tag pass-through function for ADSL line card
  Whenever the VLAN tag pass-through (VTP) is configured as enabled, the LC provides transparent transportation of the VLAN traffic from subscriber interface to network interface without any VLAN tag attachment. The LC will not attach any VLAN tag to the upstream subscriber traffic. In the mean time, the LC will also not replace the existing VLAN tag of the upstream subscriber traffic.
  On the other hand, in the case that the VTP function is configured as disabled, the LC will attach a VLAN tag to all the traffic from subscriber interface to network interface.
- IEEE 802.1Q VLAN forwarding function for ADSL line card and GE ports
  The operator can set the xDSL subscriber ports as well as the GE ports to only forward either tagged traffic or untagged traffic.

**Step 1** From the '**Rack**' tab view, point the mouse cursor on the NE object (Shelf, NC slot, or LC slot), and then right click the mouse button to launch the function menu and then click '**Board Setting** on **Function Menu**' to open the **Board Setting List** Dialog, or click Diagnosis → Board Setting on **Main Menu** to open the **Board Setting List** Dialog as shown in Figure 4-9 and Table 4-4 depicts the related parameters.

**Figure 4-9 Board Setting List Dialog**

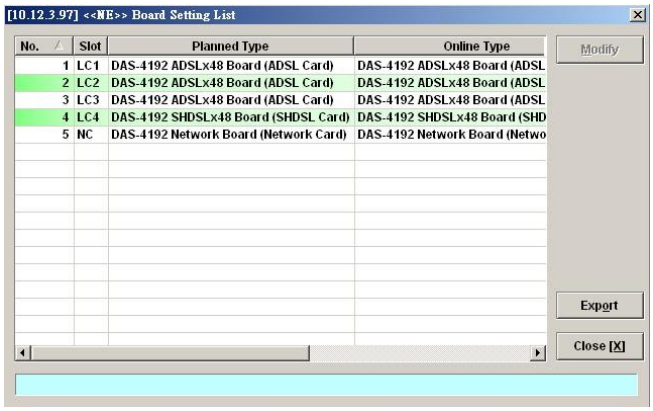


**Table 4-4 Board Setting List Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot | This indicates the location of board. |
| Planned Type | This indicates the board type planned to be equipped to the slot of DAS4 Series IP-DSLAM. If the planned type is mismatched (removed or type error) with online type detected from the system, the board mismatch alarm message will be reported. |
| Online Type | This indicates the observed board type of the card module in the slot (current type) |
| AAL5 Encapsulation | This indicates the AAL5 encapsulation mode, either "LLC" or "VC-MUX"(VC Based Multiplexing) per RFC-2684.<br>RFC 2684 defines the encapsulation methods for transporting the routed and bridged Protocol Data Units (PDUs) across a native ATM network. |
| Service Type Control | This indicates the "Service Type Control" function is enables or not.<br>The service type control can be enabled to provide control of PPPoE, DHCP or static IP on a per line card basis. |
| Configured Tagged mode | This indicates the tagged mode is configured as either tagged or untagged mode. |
| Run-Time Tagged mode | This indicates the operational status of tagged mode.<br>Tagged-only: LC (or NC) only forwards the tagged Ethernet frame and drops the untagged Ethernet frame.<br>Untagged-only: LC (or NC) only forwards the untagged Ethernet frame and drops the untagged Ethernet frame.<br>It is noted that the value of configured Tagged mode and its Run-Time Status may be different. Please refer to Table 4-6 for the NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters. |
| Configured VLAN Tag Pass Through (VTP) | This indicates the VLAN tag pass-through (VTP) is configured as enables or not. (per LC setting)<br>The VTP function provides transparent transportation of the VLAN traffic from subscriber interface to network interface without VLAN tag attachment, this allows subscriber deployed their own VLAN ID to associate in the network without double tag or replace the existing VLAN ID by system. |
| Run-Time VLAN Tag Pass Through (VTP) | This indicates the operational status of VTP.<br>It is noted that the value of configured VTP and its Run-Time Status may be different. Please refer to Table 4-6 for the NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters. |
| **Function Button** | |
| Modify | Selected the row and click '**Modify**' button to perform the modification of specific item on the selected board. |
| Export | Click this button to save the contents of **Board Setting List** to the Personal Computer. |
| Close | Exit the **Board Setting List** Dialog. |

**Step 2** To modify the slot setting, click and highlight a slot from **Board Setting List** and click '**Modify**' button to launch the **Board Setting** Dialog as shown in Figure 4-10 and

Figure 4-11 for LC and NC setting, respectively. Table 3-1depicts the related parameters.

**Figure 4-10 xDSL Board Setting Dialog**

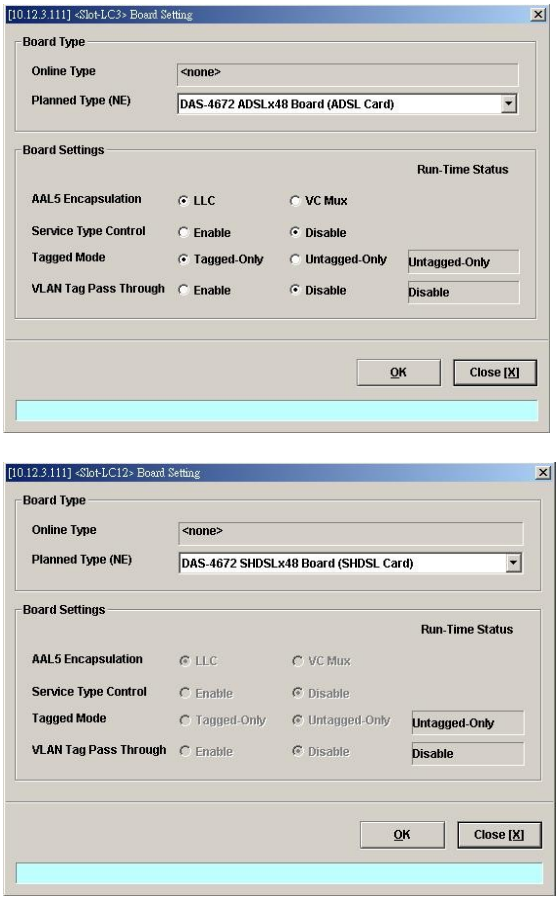



**Figure 4-11 NC Boarding Setting Dialog**

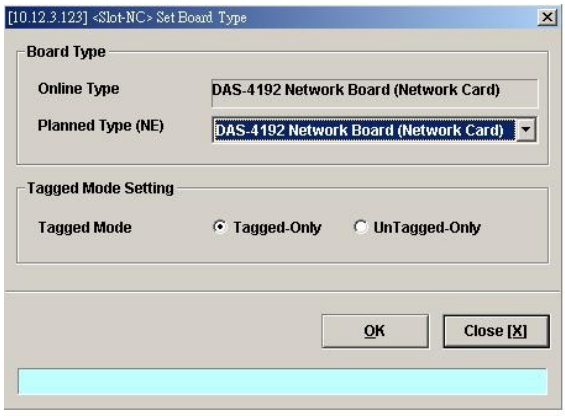


**Table 4-5 Board Setting Dialog Description**

| Field | Description |
|---|---|
| **Board Type** | |
| Planned Type [Modify] | This specifies the board type planned to be equipped to the slot of DAS4 Series IP-DSLAM. If the planned type is mismatched (removed or type error) with online type detected from the system, the board mismatch alarm message will be reported. |
| Online Type | This specifies the observed board type of the card module in the slot (current type) |
| **Board Settings** | |
| AAL5 Encapsulation [Modify] | This specifies the AAL5 encapsulation mode, either "LLC" or "VC-MUX"(VC Based Multiplexing) per RFC-2684.<br>RFC 2684 defines the encapsulation methods for transporting the routed and bridged Protocol Data Units (PDUs) across an native ATM network. |
| Service Type Control [Modify] | This specifies the "Service Type Control" function is enables or not.<br>The service type control can be enabled to provide control of PPPoE, DHCP or static IP on a per line card basis. |
| Tagged mode [Modify] | This specifies the tagged mode is configured as either tagged or untagged mode. |
| Run-Time Status of Tagged mode | This specifies the operational status of tagged mode.<br>Tagged-only: LC (or NC) only forwards the tagged Ethernet frame and drops the untagged Ethernet frame.<br>Untagged-only: LC (or NC) only forwards the untagged Ethernet frame and drops the untagged Ethernet frame.<br>It is noted that the value of configured Tagged mode and its Run-Time Status may be different. Please refer to Table 4-6 for the NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters. |
| VLAN Tag Pass Through (VTP) [Modify] | This specifies the VLAN tag pass-through (VTP) is configured as enables or not. (per LC setting)<br>The VTP function provides transparent transportation of the VLAN traffic from subscriber interface to network interface without VLAN tag attachment, this allows subscriber deployed their own VLAN ID to associate in the network without double tag or replace the existing VLAN ID by system. |
| Run-Time Status of VTP | This specifies the operational status of VTP.<br>It is noted that the value of configured VTP and its Run-Time Status may be different. Please refer to Table 4-6 for the NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters. |
| **Function Button** | |
| OK | Press this button to commit setting. |
| Cancel | Press this button to cancel setting. |

**Board Setting** Dialog allows you to define the line card (LC) AAL5 encapsulation mode, "VLAN Tag pass-through (VTP)" mode, Tagged mode and "Service Type Control" mode. Those functions indicate as per board, configuration affects the setting of all ports of selected LC.

The ADSL LC needs to be reset to perform the expected system behavior as depicted in Table 4-6 whenever its run-time status changes.

The NC needs to be reset to perform the expected system behavior as depicted in Table 4-6 whenever its configured tagged mode changes.

Whenever the GE2 is set as subtended port and the NC is set as "tagged-only" mode, in order to make the NE forward the VLAN-specific traffic between GE1 and GE2, the operator needs to manually set GE1 and GE2 as the member ports of VLANs in interest. Please refer Section "Manual VLAN Setting" for the VLAN-member port setting of GE1 and GE2 whenever GE2 works as a subtended port.

It is noted that the run-time status of LC may be different to its corresponding configuration. In this case, the behavior of the NE is per the run-time status of NE instead of their configuration. To describe the NE behavior, the following notations are adopted in Table 4-6

- $Q_S$ represents the service VLAN-tag and its VLAN-ID value is provided by the NE.
- $Q_{S\ (CPE)}$ represents the service VLAN-tag and the notation $_{(CPE)}$ indicates that its VLAN-ID value is provided by the CPE (or the subscriber's PC behind the CPE).
- $Q_{(CPE)}$ represents the 802.1Q VLAN-tag.
- $Q_{C\ (CPE)}$ represents the customer VLAN-tag and the notation $_{(CPE)}$ indicates that its VLAN-ID value is provided by the CPE (or the subscriber's PC behind the CPE).

**Table 4-6 The NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters.**

| NC Setting | ADSL LC setting | | ADSL LC Run-Time Status | | Expected NE behavior | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | VLAN-tagging Status of Egress Traffic | | Acceptable Ingress Traffic | |
| **Tagged mode** | **Tagged mode** | **VTP** | **Tagged mode** | **VTP** | **On NC** | **On the ADSL line** | **On NC** | **On the ADSL line** |
| Tagged | Tagged | Enabled | Tagged | Enabled | $Q_{S\ (CPE)}$ | $Q_{(CPE)}$ | Tagged | Tagged |
| | | Disabled | Tagged | Disabled | $Q_S$+$Q_{C\ (CPE)}$ | $Q_{(CPE)}$ | Tagged | Tagged |
| | Untagged | Enabled | Untagged | ***Disabled*** | $Q_S$ | Untagged | Tagged | Untagged |
| | | Disabled | Untagged | Disabled | $Q_S$ | Untagged | Tagged | Untagged |
| Untagged | Tagged | Enabled | ***Untagged*** | ***Disabled*** | Untagged | Untagged | Untagged | Untagged |
| | | Disabled | ***Untagged*** | Disabled | Untagged | Untagged | Untagged | Untagged |
| | Untagged | Enabled | Untagged | ***Disabled*** | Untagged | Untagged | Untagged | Untagged |
| | | Disabled | Untagged | Disabled | Untagged | Untagged | Untagged | Untagged |

It is noted that the NE will drop the tagged Ethernet frames of VLAN-ID not configured by the VC-to-VLAN setting (see Figure 7-66) in the following case.
NC tagged mode = Tagged
LC tagged mode Run-Time Status = Tagged
LC VTP Run-Time Status = Enabled

NOTE
The tagged mode (run-time) indicates the operational status of tagged mode.
Tagged-only: LC (or NC) only forwards the tagged Ethernet frame and drops the untagged Ethernet frame.
Untagged-only: LC (or NC) only forwards the untagged Ethernet frame and drops the tagged Ethernet frame.
It is noted that the value of configured Tagged mode and its Run-Time Status may be different. Please refer to Table 4-6 for the NE behavior when configuring NC and ADSL LC with various Tagged mode and VTP parameters.

# NE SNMP Management

SNMP (Simple Network Management Protocol) is an application-layer protocol that facilitates the exchange of management information between a NE and LCT. SNMP enables the administrators to manage the NE by the LCT. In the term of SNMP, the NE plays the role of SNMP agent and the LCT serves as the SNMP server. This section describes how to configure the SNMP on the NE.

NOTE
Beware of the SNMP community setting, this will affects the communication between the AMS LCT and NE, re-login the AMS LCT if the SNMP community has been modified.

## Configuring the SNMP Trap Manager

SNMP Trap Manager records the hosts (any SNMP server, like LCT, AMS Server, and so on) to be notified whenever the NE encounters abnormalities. When a trap condition happens to the NE, the NE sends the corresponding SNMP trap message to the hosts (SNMP server) specified in the SNMP Manager IP Address List.

Follow the subsequent procedures to configure the NE's SNMP Manager.

**Step 1** Click Configuration → NE Management → SNMP Managers on **Main Menu** to open the **NE SNMP Manager IP Address List** Dialog as shown in Figure 4-12 and Table 4-7 depicts the related parameters.

**Figure 4-12 NE SNMP Manager IP Address List Dialog**

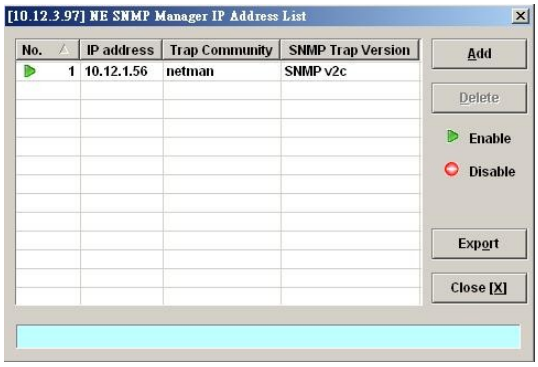


**Table 4-7 NE SNMP Manager IP Address List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| IP address | This indicates the IP address (Server / Host IP) of SNMP Manager. |
| Trap Community | This specifies the SNMP trap community of NE (Send Trap). |
| SNMP Trap Version | This specifies the Trap version. |
| **Function Button** | |
| Add | Click this button to create a new SNMP Manager (Trap) IP Address. |
| Delete | Select a trap community from the list table to remove. |
| Export | Click this button to save the contents of **NE SNMP Manager IP Address List** to the Personal Computer. |
| Close | Exit the **NE SNMP Manager IP Address List** Dialog. |

**Step 2** Click '**Add**' button to create a new trap receiver host with community, while to remove the trap receiver, click and highlight a host in the list and click '**Delete**' button, as shown in Figure 4-13 and Table 4-8 depicts the related parameters.

**Figure 4-13 Add NE SNMP Manager IP Address Dialog**

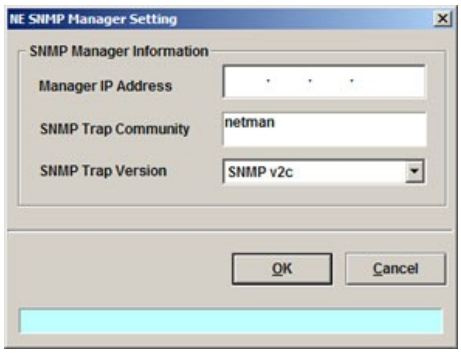



**Table 4-8 Add NE SNMP Manager IP Address Dialog Description**

| Field | Description |
|---|---|
| IP address | This specifies the IP address (Server / Host IP) of SNMP Manager.<br>**Valid values:** Any valid class A/B/C address |
| Trap Community | This specifies the SNMP trap community of NE (Send Trap).<br>**Valid values:** String of up to 20 characters and any combination of printable characters ('A' – 'Z', 'a' – 'z', '0' – '9', '-', '_', '@'). |
| SNMP Trap Version | This specifies the Trap version.<br>**Valid values:** SNMP v2c |

## Configuring the SNMP Community

The SNMP community is a string representing the password to access the MIB of NE with the associated privilege. The NE supports two levels of privilege (Permission) as follows.

- Read / Write / Create – Allow the SNMP server to read and write all objects in the MIB, as well as the community strings.
- Read-only – Only allow the SNMP server to read all objects in the MIB except the community strings.

NOTE The community string definitions on your AMS LCT must match at least one of those community string definitions on the NE. Otherwise, the LCT is not allowed to access the NE.

Follow the subsequent procedures to configure the NE's SNMP Community.

**Step 1** Click Configuration → NE Management → SNMP Community on **Main Menu** to open the **NE SNMP Community List** Dialog as shown in Figure 4-14 and Table 4-9 depicts the related parameters.

**Figure 4-14 NE SNMP Community List Dialog**

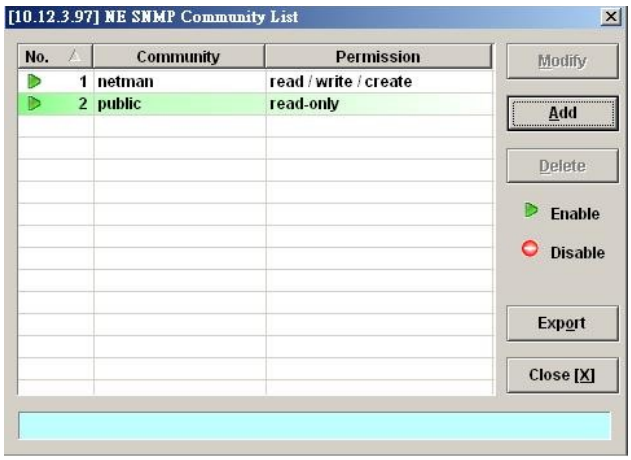



**Table 4-9 NE SNMP Community List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Community | This indicates the case-sensitive SNMP community name. |
| Permission | This indicates the permission level, either "read only" or "read & write" |
| **Function Button** | |
| Modify | Select a SNMP community to modify. |
| Add | Click this button to create a new SNMP community of NE. |
| Delete | Select a SNMP community to remove. |
| Export | Click this button to save the contents of **NE SNMP Community List** to the Personal Computer. |
| Close | Exit the **NE SNMP Community List** Dialog. |

**Step 2** Click '**Add**' button to create a new SNMP community strings, while to remove the SNMP community strings, click and highlight a community in the list and click

'**Delete**' button, as shown in Figure 4-15 and Table 4-10 depicts the related parameters.

**Figure 4-15 Add NE SNMP Community Dialog**

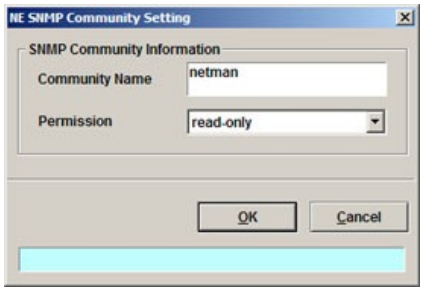



**Table 4-10 Add NE SNMP Community Dialog Description**

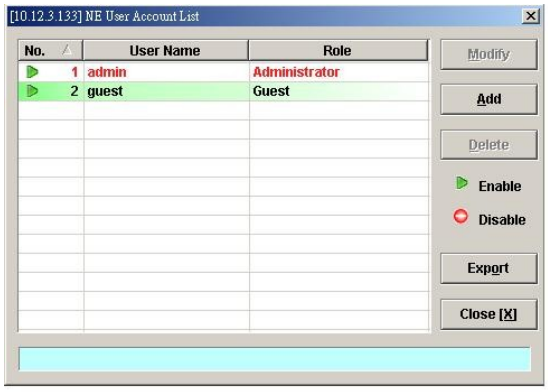
| Field | Description |
|---|---|
| Community Name | This indicates the case-sensitive SNMP community name.<br>**Valid values:** String of up to 20 characters and any combination of printable characters ('A' – 'Z', 'a' – 'z', '0' – '9', '-', '_', '@'). |
| Permission | This indicates the permission level.<br>**Valid values:** read-only, read/write/create |

# User Account Management

Follow the subsequent procedures to configure the user account of the NE.

**Step 1** Click Configuration → NE Management → NE User Account on **Main Menu** to open the **NE User Account List** Dialog as shown in Figure 4-16 and Table 4-11 depicts the related parameters.

**Figure 4-16 NE User Account List Dialog**




**Step 2** Click '**Add**' button to create a new user account, while to remove the user account, click and highlight a user name in the list and click '**Delete**' button, as shown in Figure 4-17 and Table 4-12 depicts the related parameters.

**Table 4-11 NE User Account List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| User Name | This indicates the user account name. |
| Role | This indicates the permission right of user group. |
| **Function Button** | |
| Modify | Select a user name from the list table to modify. |
| Add | Click this button to create a new user of NE. |
| Delete | Select a user from the list table to remove. |
| Export | Click this button to save the contents of **NE User Account List** to the Personal Computer. |
| Close | Exit the **NE User Account List** Dialog. |

**Figure 4-17 NE User Account Setting Dialog**

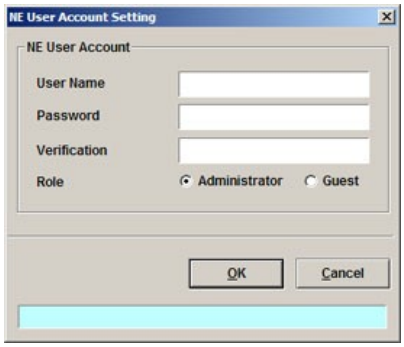



**Table 4-12 NE User Account Setting Dialog Description**

| Field | Description |
|---|---|
| User Name | This indicates the user account name.<br>**Valid values:** String of up to 20 characters and any combination of printable characters (‘A’ – ‘Z’, ‘a’ – ‘z’, ‘0’ – ‘9’, ‘-’, ‘_’, ‘@’). |
| Password | This specifies the password. |
| Verification | This verifies the password again. |
| Role | This indicates the permission right of user group.<br>Administrator – Owns privilege of Read/Write<br>Guest – Owns only Read privilege |

## Secured Host Management

Follow the subsequent procedures to configure the secured (trusted) hosts allowed to access the NE.

**Step 1** Click Configuration → NE Management → Secured Hosts on **Main Menu** to open the **NE Secured Host List** Dialog as shown in Figure 4-18 and Table 4-13 depicts the related parameters.

**Figure 4-18 NE Secured Host List Dialog**

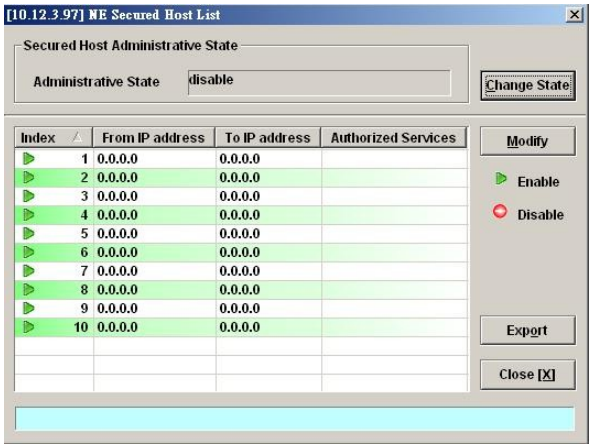
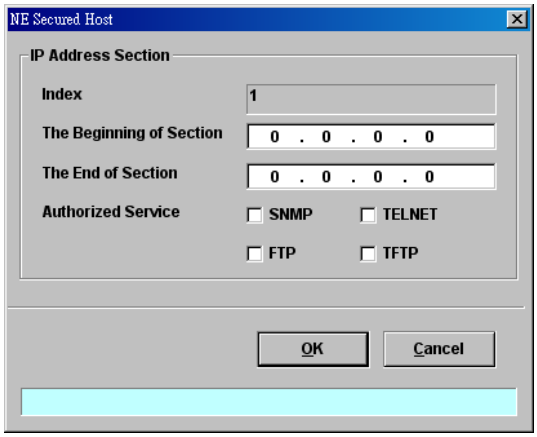



**Table 4-13 NE Secured Host List Dialog Description**

| Field | Description |
|---|---|
| **Secured Host Administrative State** | |
| Administrative State | This indicates the state of NE secured host function. In case of enabled state, only the hosts of configured IP addresses are allowed to access the NE via the configured 'Authorized Services'. |
| **List Table** | |
| Index | This indicates the number of List Table. |
| From IP Address | This indicates the beginning of the IP address range of the secured hosts. |
| To IP Address | This indicates the end of the IP address range of the secured hosts. |
| Authorized Services | This indicates the services (any combination of SNMP, TELNET, FTP and TFTP) the specified secured hosts are allowed. |
| **Function Button** | |
| Change State | Click this button to enable or disable the secured host function. |
| Modify | Click this button to modify the specified secured host list. |
| Export | Click this button to save the contents of **NE Secured Host List** to the Personal Computer. |
| Close | Exit the **NE Secured Host List** Dialog. |

**Step 2** Click and highlight a row and click '**Modify**' button to modify the secured hosts, as shown in Figure 4-19 and Table 4-14 depicts the related parameters.

**Figure 4-19 NE Secured Host Setting Dialog**




Assign the IP range and check the authorized services (any combination of SNMP, TELNET, FTP and TFTP) of trusted hosts to be allowed.

**Table 4-14 NE Secured Host Setting Dialog Description**

| Field | Description |
|---|---|
| **IP Address Section** | |
| Index | This indicates the index of IP address section under modifying. |
| The Beginning of Section | This specifies the beginning of the IP address section of the secured hosts. |
| The End of Section | This specifies the end of the IP address section of the secured hosts. |
| Authorized Service | Check the checkbox to select the authorized services. |

# NE Date and Time Management

Follow the subsequent procedures to configure the NE system time.

Click Configuration → NE Management → System Time on **Main Menu** to open the **NE System Time** Dialog as shown in Figure 4-20 and Table 4-15 depicts the related parameters.

**Figure 4-20 NE System Time Dialog**

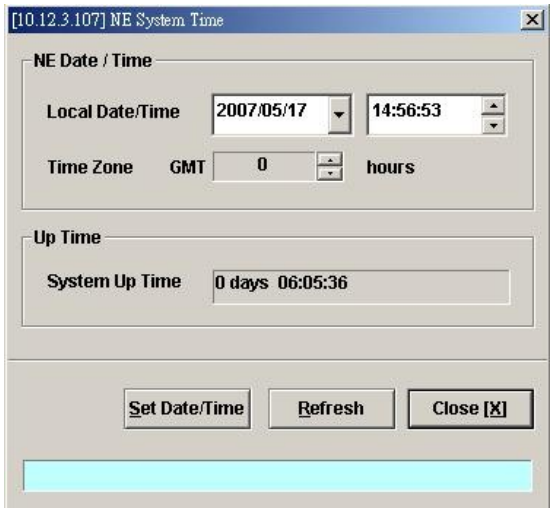


**Table 4-15 NE System Time Dialog Description**

| Field | Description |
|---|---|
| **Date / Time** | |
| Local Date / Time | This indicates the current NE date and time. |
| **Time Zone** | |
| GMT | This indicates the time differences between the Greenwich Mean Time and the local time.<br>Unit: hour |
| **Up Time** | |
| System Up Time | This indicates the period since the NE is rebooted last. |
| **Function Button** | |
| Set Date/Time | Click this button to apply the configured Local Date/Time. |
| Refresh | Click this button to refresh the Date/Time and Up Time information. |
| Close | Exit the NE System Time Dialog. |

## DNS Server Setting

The DNS Server is used for the resolution of domain name. In other words, the DNS replies the corresponding IP address to the URL.

Follow the subsequent procedures to configure the DNS Server.

Click Configuration → NE Management → DNS Servers on **Main Menu** to open the **NE DNS Server Setting** Dialog as shown in Figure 4-21 and Table 4-16 depicts the related parameters.

**Figure 4-21 DNS Server Setting Dialog**

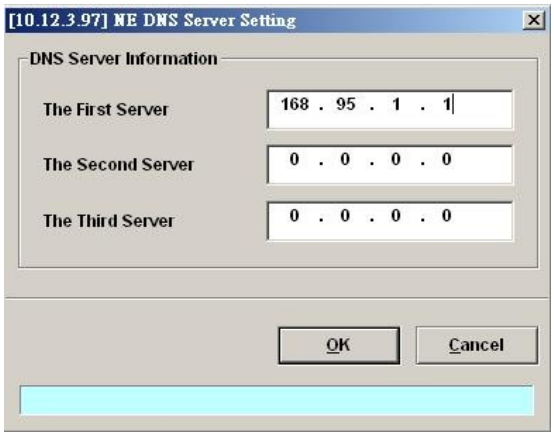



**Table 4-16 DNS Server Setting Dialog Description**

| Field | Description |
|---|---|
| **DNS Server Information** | |
| The First Server | This specifies the first DNS server IP address. |
| The Second Server | This specifies the second DNS server IP address. |
| The Third Server | This specifies the third DNS server IP address. |

# Time Server Setting

Follow the subsequent procedures to configure the time servers.

**Step 1** Click Configuration → NE Management → Time Servers on **Main Menu** to open the **Time Server Status** Dialog as shown in Figure 4-22 and Table 4-17 depicts the related parameters.

**Figure 4-22 NE Time Server Status Dialog**

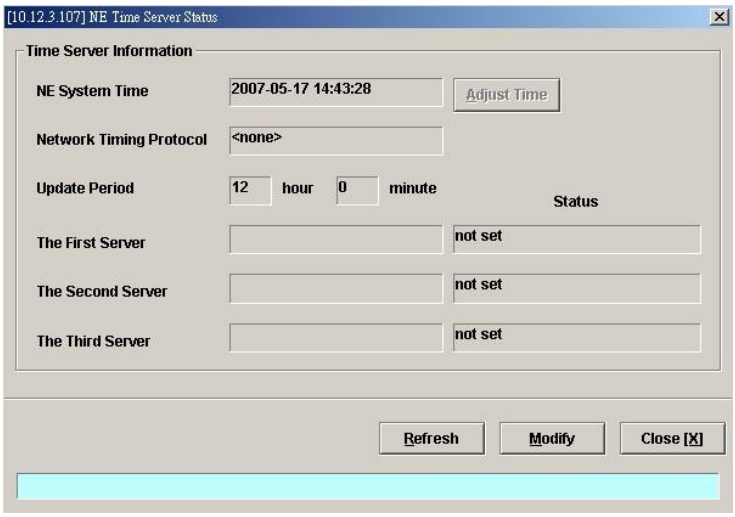



**Table 4-17 NE Time Server Status Dialog Description**

| Field | Description |
|---|---|
| **Time Server Information** | |
| NE System Time | This indicates the current NE system time. |
| Network Timing Protocol | This indicates the current network time protocol, SNTP or None. |
| Update Period | This indicates the time period between two consecutive synchronizations of the NE's local time with the time server. |
| The First Server | This indicates the first time server the NE tries to synchronize with. |
| The Second Server | This indicates the second time server the NE tries to synchronize with. |
| The Third Server | This indicates the third time server the NE tries to synchronize with. |
| Status | This indicates connection status between the NE and the time server. |
| **Function Button** | |
| Adjust Time | Click this button to enforce the NE to synchronize its local time with the time server immediately. |
| Refresh | Click this button to refresh this launched window. |
| Modify | Click this button to set the NE time servers. |
| Close | Exit the NE Time Server Status Dialog. |

**Step 2** Click '**Modify**' button to modify the Time Server information, as show in Figure 4-23 and Table 4-18 depicts the related parameters.

**Figure 4-23 NE Time Server Setting Dialog**

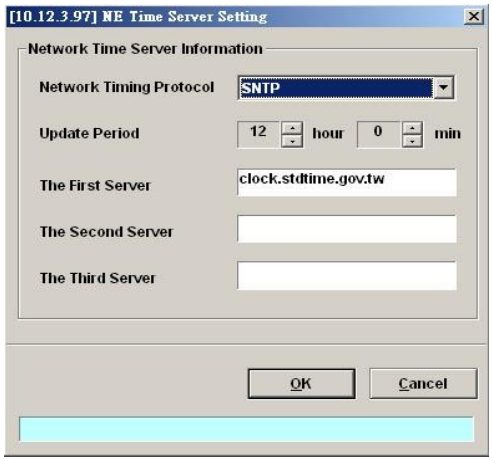



**Table 4-18 NE Time Server Setting Dialog Description**

| Field | Description |
|---|---|
| **Network Time Server Information** | |
| Network Timing Protocol | This specifies the network timing protocol, either SNTP or None. |
| Update Period | This specifies the time period between two consecutive synchronizations of the NE's local time with the time server. |
| The First Server | This specifies the first time server the NE tries to synchronize with. |
| The Second Server | This specifies the second time server the NE tries to synchronize with. |
| The Third Server | This specifies the third time server the NE tries to synchronize with. |

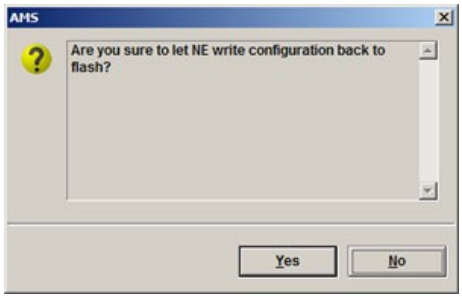
NOTE The NE will synchronize its local time with the first time server's time as a top priority. If the first time server fails to respond, the NE tries to synchronize it's local time with the second and third time server's time in sequence.

## Saving the NE Configuration

Follow the subsequent procedures to save your NE configuration to Flash.

Click Configuration → NE Write Flash on **Main Menu** to open the **Write Flash Confirm** Dialog, or alternative select from the '**Rack**' tab view, point the mouse cursor on the NE object (Shelf, NC slot, or LC slot), and then right click the mouse button to launch the **Function Menu** and select '**Write Flash**' from this menu, as shown in Figure 4-24.

**Figure 4-24 NE Write Flash Confirm Dialog**



# Chapter 5Profile Management

A profile is a named list of configuration parameters with a value assigned to each parameter. By using a profile, the operator can configure the NE without to key in a lot of configuration parameters. However, whenever the operator modifies a profile, the modification will affect all ports using that profile.

This chapter describes the management of two kinds of profiles, data transport related profiles and alarm definition profile. The alarm definition profile defines the attributes of the report (alarm) of abnormality launched by the NE.

As to the data transport related profiles, they are

- xDSL Profile
- VLAN Profile

The xDSL Profile indicates the ADSL Profile and SHDSL Profile. It defines the attributes of the connection established via the xDSL subscriber loop. As to the VLAN Profile, it defines the attributes of services/applications applied to the xDSL subscriber.

Figure 5-25 and Table 5-19 help you to understand each profile and their interrelationship.

**Figure 5-25 Interrelationship of Data Transport Related Profiles**

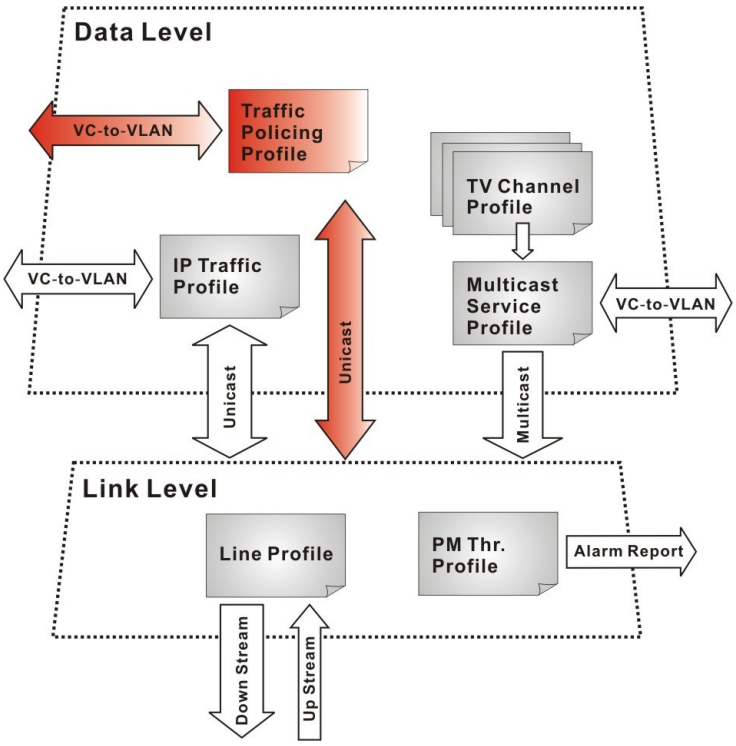


**Table 5-19 Data Transport Related Profiles**

| Profile | | Capacity | Level | Category | Description |
|---|---|---|---|---|---|
| XDSL Profile | Line Profile | 60 sets | Link | Loop | Define the attributes of xDSL loop connection. |
| | PM Threshold Profile | 60 sets | Link | Loop | Report the message if loop connection error across the threshold. |
| | Traffic Policing Profile (ADSL LC only) | 60 sets | Data | User Data | Define the rule of traffic policing for user data. |
| VLAN Profile | IP Traffic Profile | 60 sets | Data | Unicast | Define the traffic bandwidth of Unicast connection. |
| | Multicast Service Profile | 60 sets | Data | Multicast | A set of service selected from menu list. |
| | TV Channel Profile | 800 sets | Data | Multicast | A menu list of multicast channel, it also defines the traffic bandwidth of Multicast connection. |

To make Traffic Policing Profile take effect, it needs to set IP Traffic Profile properly. Please refer to the NOTE under Table 5-27.

To make an xDSL line works normally, the IP Traffic Profile is essential. As to the Traffic Policing Profile, it is optional and is only applicable to ADSL LC.

A profile is a named list of configuration parameters with a value assigned to each parameter. When you delete a profile you will affect the change on all port or connection using that profile. If you want to change a single port or a subset of ports, you can create another profile with desired parameters, and then assign the new profile to the desired port.

This chapter contains the following sections:

- Configuring the xDSL Profile
- Configuring the VLAN Profile
- Configuring the Alarm Definition Profile

At first, the usage of **Function Button** in the **ADSL Profile List Dialog** is described as follows. Click Configuration → Profile → ADSL Profile on **Main Menu** to open the **ADSL Profile List** Dialog. Figure 5-26 indicates the position of the **Function Button** by red rectangle.

**Figure 5-26 xDSL Profile List Dialog Function Button**

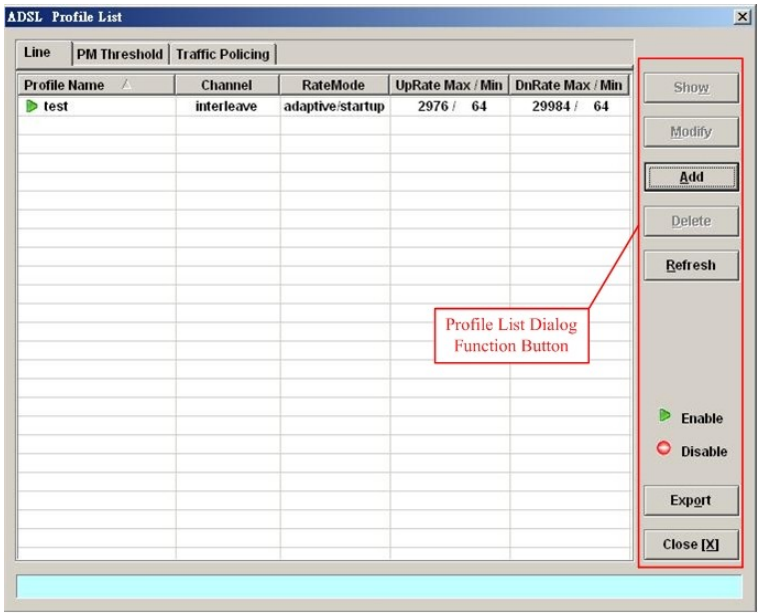



**Table 5-20 xDSL Line Profile List Dialog Function Button**

| Field | Description |
|---|---|
| Show | Click this button to view the details of selected profile. |
| Modify | Click this button to modify the parameters of selected profile |
| Add | Click to add a new profile. |
| Delete | Click this button to delete the selected profile. |
| Refresh | Click to refresh the **xDSL Profile List** |
| Export | Click this button to save the contents of **xDSL Profile List** to the Personal Computer. |
| Close | Exit the **xDSL Profile List** Dialog. |

# Configuring the xDSL Profile

The xDSL profiles enable you to simplify the process to configure the different xDSL loops with the same loop/data connection attributes. For example, you may classify the subscribers to several categories like category of residential customers, category of small office customers, category of enterprise customers and so on. Each category of subscribers is with the same loop/data connection attributes. Different categories are with their specific attributes like the line speed and performance monitoring to secure their particular service quality. Once the profiles are created, you can easily assign the xDSL subscriber with the request xDSL loop attributes.

This section depicts the supported xDSL profiles

- ADSL Profile
- SHDSL Profile

## ADSL Profile

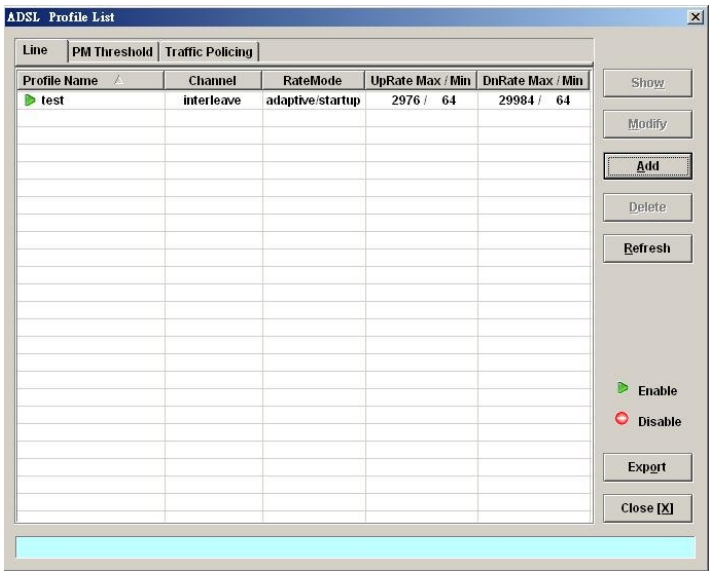
Three types of profiles are relative to the ADSL loop, which are Line Profile, Traffic Policing Profile and PM Threshold Profile.

Click Configuration → Profile → ADSL Profile on **Main Menu** to open the **ADSL Profile List** Dialog.

### Line Profile

Click the **Line** tab in ADSL Profile List dialog to launch the **ADSL Profile List – Line Dialog** to configure the ADSL Line profile as shown in Figure 5-27.

**Figure 5-27 ADSL Profile List – Line Dialog**




Click ‘Add’ button to generate a line profile. Or select an existent profile and click ‘Modify’ to modify it. It is noted that each profile must have its unique profile name.

The line profile consists of the following groups of ADSL loop related parameters.

- Transmission Rate
- SNR margin
- PSD
- Power management
- INP

#### Transmission Rate

Click the **Transmission Rate tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– Transmission Rate Dialog** as shown in Figure 5-28. Table 5-21 depicts the related parameters.

**Figure 5-28 Add ADSL Line Profile– Transmission Rate Dialog**

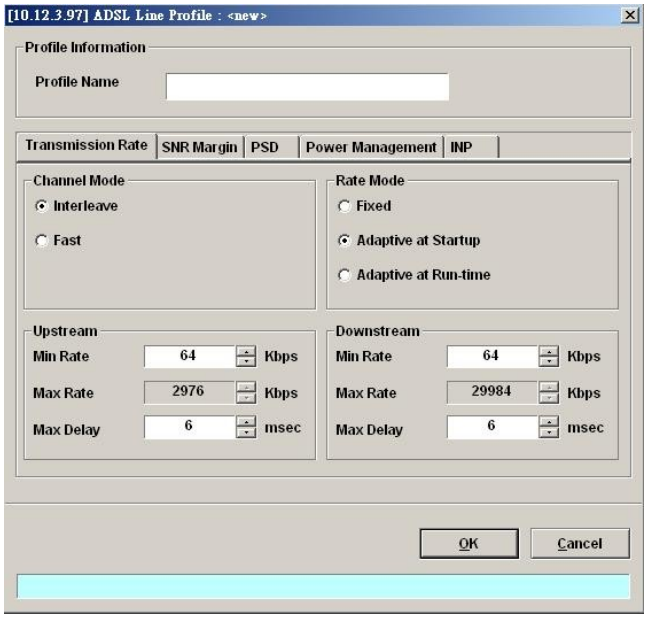



**Table 5-21 Add Line Profile– Transmission Rate Dialog Description**

| Field | Description |
|---|---|
| **Profile Information** | |
| Profile Name | Enter to give a profile name |
| **Channel Mode** | |
| Interleave | Click to let the ADSL loop to be in the interleave mode. Interleave mode enhances the immunity to the impulse noise like lighting. However, its side effect is to introduce the transmission latency. Hence it is suitable for the time-insensitive data transmission, like file transfer.<br>Its associated parameters are the 'Upstream/Downstream Max Delay' |
| Fast | Click to let the ADSL loop to be in the fast mode. Fast mode is suitable for the transmission of time-sensitive information such as audio. |
| **Rate Mode** | |
| Fixed | Click to let the ADSL loop to be of a fixed rate as specified by the 'Upstream/Downstream Min Rate'. In this mode, the NE will fail to establish the connection with ATU-R whenever it is not allowed in the physical loop environment. The failure may be due to the loop length, line quality, and so on. |
| Adaptive at Startup | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'.<br>In comparison with 'Adaptive at Run-time', the NE will re-try to establish a new lower-rate connection with the ATU-R whenever the NE or ATU-R detects 10 consecutive SESs (Severely Error Seconds) in this mode. |
| Adaptive at Run-time | Click to let the ADSL loop to be of the rate adapted in the range specified by the 'Upstream/Downstream Min/Max Rate'.<br>In comparison with 'Adaptive at Startup', the NE will trigger the SRA (Seamless Rate Adaptation) process to change the line rates without losing the connection with ATU-R whenever the physical loop environment varies in this mode. |

**Table 5-3 Add Line Profile– Transmission Rate Dialog Description (Continued)**

| Field | Description |
|---|---|
| **Upstream** | |
| Min Rate | Choose the minimum rate for the ATU-R to transmits traffic |
| Max Rate | Choose the maximum rate for the ATU-R to transmits traffic |
| Max Delay | Choose the maximum interleaved delay in milliseconds. (interleave mode only)<br>Interleaved delay applies only to the interleave channel and defines the mapping between subsequent input bytes at the inter-leaver input and their placement in the bit stream at the interleave output. Larger numbers provide greater separation between consecutive input bytes in the output bit stream, allowing for improved impulse noise immunity at the expense of payload latency. |
| **Downstream** | |
| Min Rate | Choose the minimum rate for the ATU-C to transmits traffic |
| Max Rate | Choose the maximum rate for the ATU-C to transmits traffic |
| Max Delay | Choose the maximum interleaved delay in milliseconds. (applied to the interleave mode only) |

NOTE The associated parameters of the Rate Mode 'Adaptive at Run-Time' are as follows.
'Upshift Noise Margin', 'Downshift Noise Margin', 'Upshift Time' and 'Downshift Time'

NOTE In the Rate Mode 'Adaptive at Run-Time', the NE will lose the connection with ATU-R if it fails to complete the SRA process to change the line rates

**SNR Margin**

Click the **SNR Margin tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– SNR Margin Dialog** as shown in Figure 5-29. Table 5-22 depicts the related parameters.

**Figure 5-29 Add ADSL Line Profile– SNR Margin Dialog**

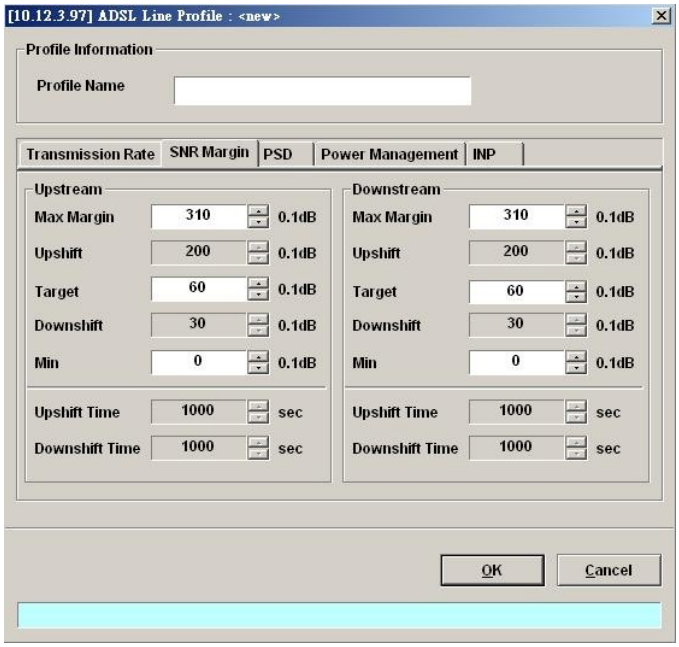


**Table 5-22 Add Line Profile– SNR Margin Dialog Description**

| Field | Description |
|---|---|
| **Upstream** | |
| **Downstream** | |
| Max Margin | It specifies the maximum margin in 0.1 dB steps.<br>Default value is 310. |
| Upshift | It specifies the up-shift margin in 0.1dB steps.<br>Default value is 200 |
| Target | It specifies the target margin in 0.1dB steps.<br>Default value is 60. |
| Downshift | It specifies the downshift margin in 0.1 dB steps.<br>Default value is 30 |
| Min | It specifies the minimum margin in 0.1 dB steps.<br>Default value is 0. |
| Upshift Time | It specifies the upshift time in sec. It defines the minimum time interval during which the upstream noise margin should stay above the Upshift SNR before the ATU-C triggers the SRA process to increase the line rate.<br>Default value is 1000.Default value is 1000. |
| Downshift Time | It specifies the downshift time in sec. It defines the minimum time interval during which the upstream noise margin should stay above the Downshift SNR before the ATU-C triggers the SRA process to decrease the line rate.<br>Default value is 1000. |

'Upshift Noise Margin', 'Downshift Noise Margin', 'Upshift Time' and 'Downshift Time' are only applied to the Rate Mode 'Adaptive at Run-Time'.

Minimum Noise Margin ≤ Downshift Noise Margin ≤ Target Noise Margin ≤ Upshift Noise Margin ≤ Maximum Noise Margin.

**PSD**

Click the **PSD tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– PSD Dialog** as shown in Figure 5-30. Table 5-23 depicts the related parameters.

**Figure 5-30 Add ADSL Line Profile– PSD Dialog**

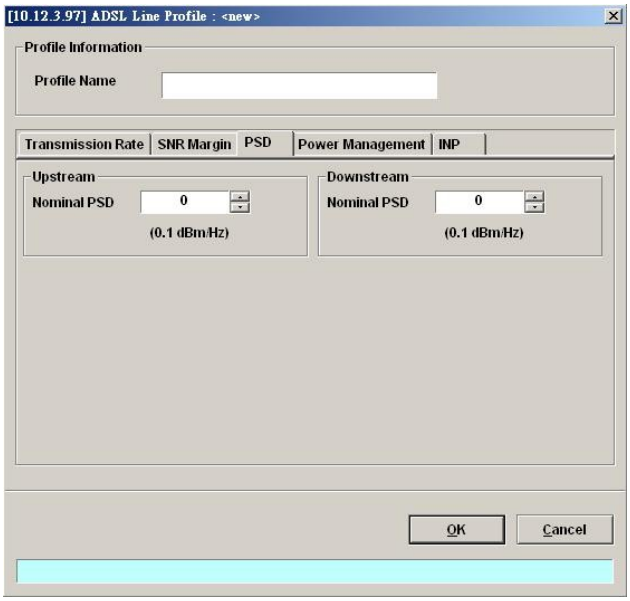



**Table 5-23 Add Line Profile – PSD Dialog Description**

| Field | Description |
|---|---|
| **Upstream** | |
| **Downstream** | |
| Nominal PSD | It specifies the discrepancy with respect to the ITU-T G.992.3-defined MAXNOMPSD value.<br>Its unit is 0.1 dBm/Hz. And its allowed range is from 40 to -400. |


It is noted that the MAXNOMPSD settings are different for the following three protocol groups.

- G.992.1 Annex A and B; G.992.2 Annex A and G; G.992.3 Annex A, B and J;
- G.992.5 Annex A, B and M
- G.992.3 Annex L

To ease the configuration, the Nominal PSD is defined to be the discrepancy with respect to the MAXNOMPSD..

**Power Management**

In order to save power, G.992.3 and G.992.5 define the power management function. The operator can either configure the ADSL line Transmission (Tx) power be either manually or automatically managed.

The automatic power management function enables the ADSL line to automatically transfer from the L0 (full-on) state to the L2 (low power) state whenever the downstream net data rate is lower than expected. And it also enables the ADSL line to automatically transfer from the L2 state to the L0 state once the NE begins to drop the downstream data.

Click the **Power Management tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– Power Management Dialog** as shown in Figure 5-31. Table 5-24 depicts the related parameters.

**Figure 5-31 Add ADSL Line Profile– Power Management Dialog**

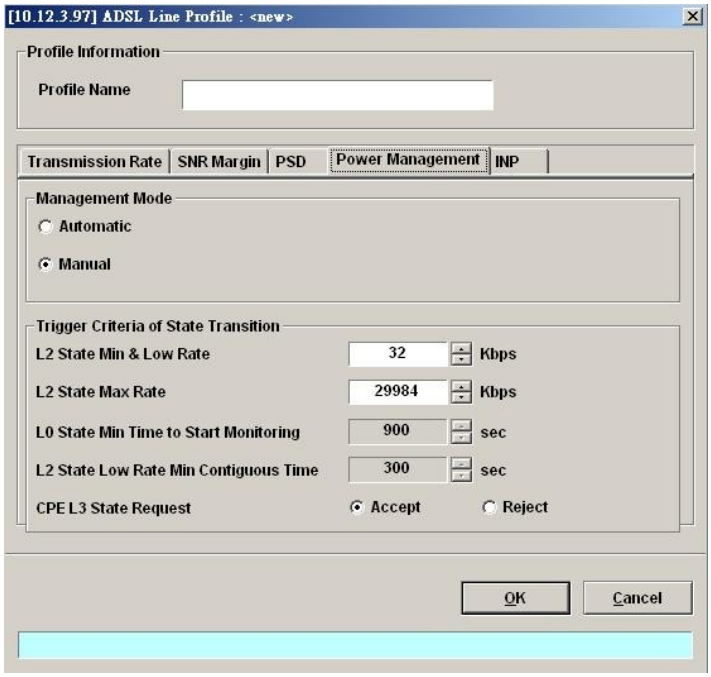



**Table 5-24 Add Line Profile – Power Management Dialog Description**

| Field | Description |
|---|---|
| **Management Mode** | |
| Automatic – This mode enables the ADSL line to automatically transfer from the L0 (full-on) state to the L2 (low power) state whenever the downstream net data rate is lower than expected. And it also enables the ADSL line to automatically transfer from the L2 state to the L0 state once the NE begins to drop the downstream data. | |
| Manual –This mode allows the operator to manually force the specific ADSL line to transfer from the L2 state to the L0 state, and vice versa. | |
| **Trigger Criteria Of State Transition** | |
| L2 State Min & Low Rate | It specifies the minimum rate (manual mode) or Lowest criteria (auto mode) of L2 state. (See the Note below)<br>Default value is 32. |
| L2 State Max Rate | It specifies the maximum rate of L2 state. (See the Note below)<br>Default value is 29984. |
| L0 State Min Time to Start Monitoring | It specifies the minimum time (seconds) the ADSL line must stay at the L0 state. During this time interval, the ADSL line is not allowed to transfer to the L2 state. It is the so-called L0-TIME as defined in ITU-T G.997.1. (See the Note below)<br>Default value is 900. |
| L2 State Low Rate Min Contiguous Time | It specifies the contiguous time interval for which the downstream mean net data rate is below the 'L2 State Min & Low Rate' on a ADSL line. (See the Note below)<br>Default value is 300. |
| CPE L3 State Request | It specifies whether the ADSL port accepts L3 command from CPE or not.<br>Default value is "Accept". |

NOTE In order to let the ADSL line avoid going into and out of L2 too often, the following L0↔L2 state transition criteria are adopted.

**L0→L2:**

- The ADSL line must stay at the L0 state for a period specified by 'L0 State Min Time to Start Monitoring' (i.e., the L0-TIME as defined in ITU-T G.997.1)
- After the L0-TIME, the NE begins to compute the mean net-data rate for a period of 'L2 State Low Rate Min Contiguous Time' on a ADSL line.
- The ADSL line transfers to the L2 state once the computed mean net-data rate is below the 'L2 State Min & Low Rate'.
- Once an ADSL line is at the L2 state, its downstream ADSL line rate is in the range from 'L2 State Min & Low Rate' to 'L2 State Max Rate'.

**L2→L0:**

- The ADSL line immediately transfers to the L0 state once the NE detects packet loss on the ADSL line in the down stream direction.

**INP**

The INP (Impulse Noise Protection) defines the minimum protection symbol time both for upstream and downstream on this ADSL subscriber.

Click the **INP tab** in **ADSL Line Profile Dialog** to launch the **ADSL Line Profile– INP Dialog** as shown in Figure 5-32. Table 5-25 depicts the related parameters.

**Figure 5-32 Add ADSL Line Profile– INP Dialog**

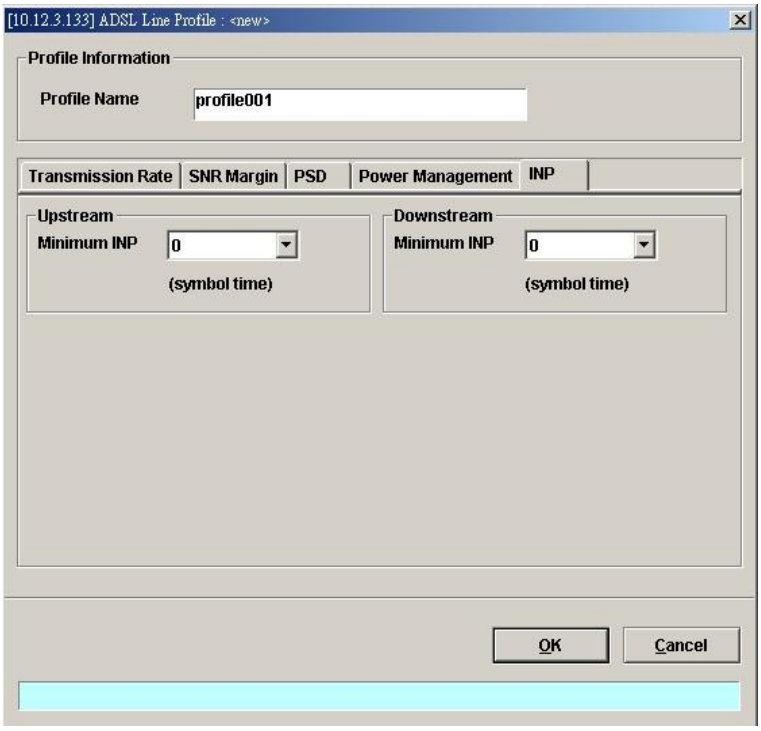



**Table 5-25 Add Line Profile – INP Dialog Description**

| Field | Description |
|---|---|
| **Upstream** | |
| **Downstream** | |
| Minimum INP | It specifies the impulse noise protection symbol time in {0, 1/2, 1, 2, 4, 8, 16}. |

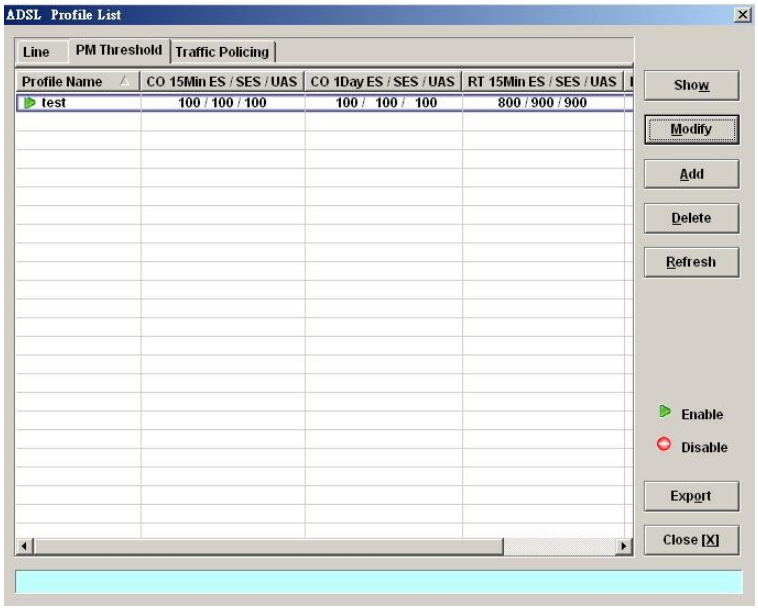
**PM Threshold Profile**

The PM threshold profile sets the threshold values for the performance parameters associated with

the ADSL line. The NE will report the threshold-over trap (i.e. TCA, Threshold-Crossing Alarm) to the AMS LCT when the specified performance threshold is over. Figure 5-33 shows ADSL PM threshold profiles accommodated in the system and allows adding a new profile or deleting the existing profile, by system (NE) unit.

Click the **PM Threshold** tab in **ADSL Profile List Dialog** to launch the **ADSL Line Profile – PM Threshold Dialog** as shown in Figure 5-33.

**Figure 5-33 xDSL Profile List– PM Threshold Dialog**




Click ‘Add’ button to generate a PM threshold profile, each profile must have its unique profile name. Or select an existent profile and click ‘Modify’ to modify it. Figure 5-34 shows **Add ADSL PM Threshold Profile Dialog**. Table 5-26 depicts the related parameters.

**Figure 5-34 Add ADSL PM Threshold Profile Dialog**

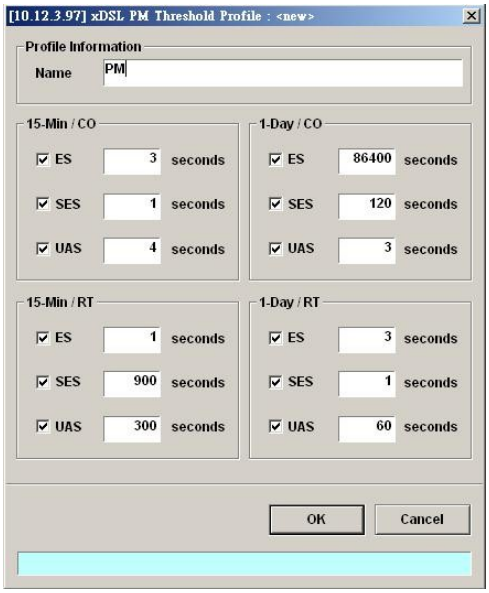


**Table 5-26 Add PM Threshold Profile Field Description**

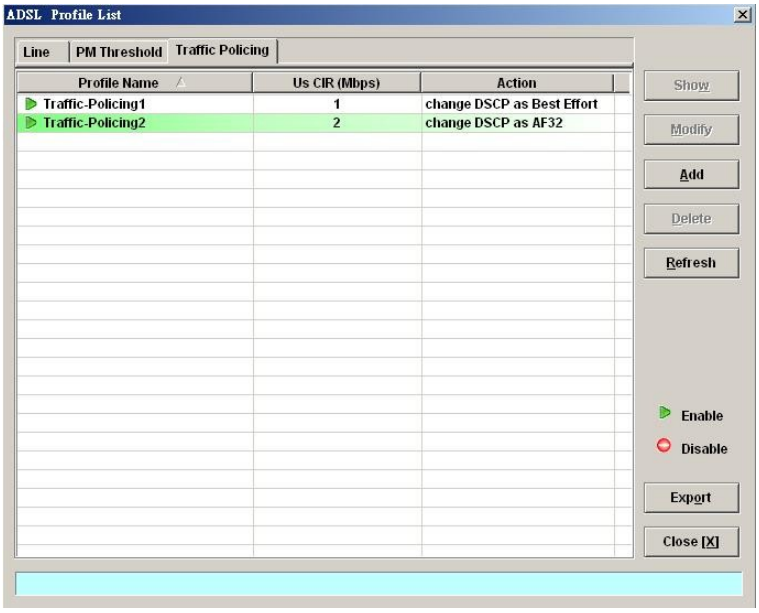
| Field | Description |
|---|---|
| **15-Min / CO** | This field indicates the CO side errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes. |
| **1-Day / CO** | This field indicates the CO side errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 1 day. |
| **15-Min / RT** | This field indicates the RT side (CPE) errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes. |
| **1-Day / RT** | This field indicates the RT side (CPE) errors. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 1 day. |
| ES | It specifies the Error second (0 ~ 900 sec) |
| SES | It specifies the Several Error Second (0 ~ 900 sec) |
| UAS | It specifies the unavailable Second (0 ~ 900 sec) |

### Traffic Policing Profile

According to SLA (Service Level Agreements) between subscribers and ISP, the edge network equipment marks subscriber's traffic with different service level. The traffic policing profile serves to keep the rule to re-mark the subscriber's upstream traffic with designated DSCP values. The traffic policing profile is design to police on the unicast connection for user's upstream traffic; once it is created you can apply it to distinct ADSL line interfaces (see Chapter 6 xDSL Line Interface).

To set the traffic policing profile, click **Configuration → Profile → ADSL Profile → Traffic Policing Dialog**.

**Figure 5-35 xDSL Profile List– Traffic Policing Dialog**




Click 'Add' button to generate a Traffic Policing profile, each profile must have its unique profile name. Or select an existent profile and click 'Modify' to modify it. Figure 5-36 shows the **Add Traffic Policing Profile Dialog**. Table 5-27 depicts the related parameters.

**Figure 5-36 Add Traffic Policing Profile Dialog**

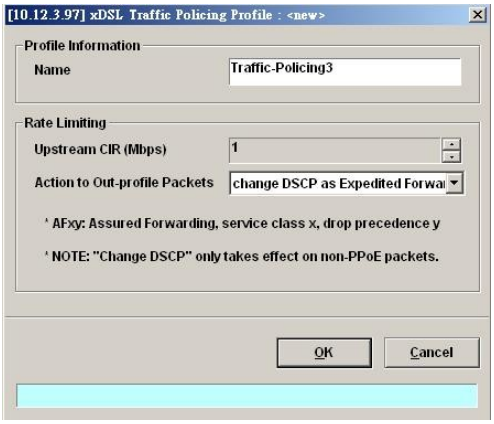



**Table 5-27 Add Traffic Policing Profile Field Description**

| Field | Description |
|---|---|
| **Profile Information** | |
| Name | It specifies the name of traffic policing profile. |
| **Rate Limiting** | |
| Upstream CIR (Mbps) | It specifies the CIR (Commit Information Rate). Valid value is 0~2 Mbps. |
| Action to Out-profile Packets | It specifies the DSCP value to be set, drop packets or do nothing whenever the user's upstream traffic exceeds CIR. |

NOTE The Service Type Control shall be enabled when Traffic Policing Profile is assign to xDSL subscribers (refer to Figure 6-52).

NOTE Please refer to Figure 6-60 for more details of Differentiated Service Code Point.

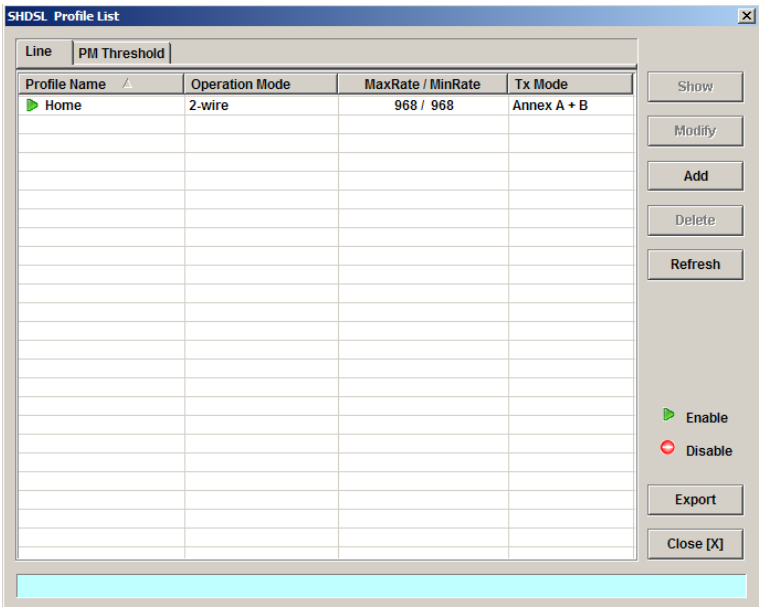
## SHDSL Profile

Two types of profiles are related with the SHDSL loop, which are Line Profile and PM Threshold Profile.

**Line Profile**

The line profile contains parameter relate to the loop connection of SHDSL. Click the **Line** tab in **SHDSL Profile List Dialog** to launch the **SHDSL Profile List – Line Dialog** to configure the ADSL Line profile as shown in Figure 5-37.

**Figure 5-37 SHDSL Profile List– Line Dialog**




Click ‘Add’ button to generate a line profile. Or select an existent profile and click ‘Modify’ to modify it. It is noted that each profile must have its unique profile name.

The line profile consists of the following groups of SHDSL loop related parameters.

- Transmission Rate
- SNR margin
- Miscellaneous

**Transmission Rate**

Click the **Transmission Rate tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile– Transmission Rate Dialog** as shown in Figure 5-38. Table 5-28 depicts the related parameters.

**Figure 5-38 Add SHDSL Line Profile– Transmission Rate Dialog**

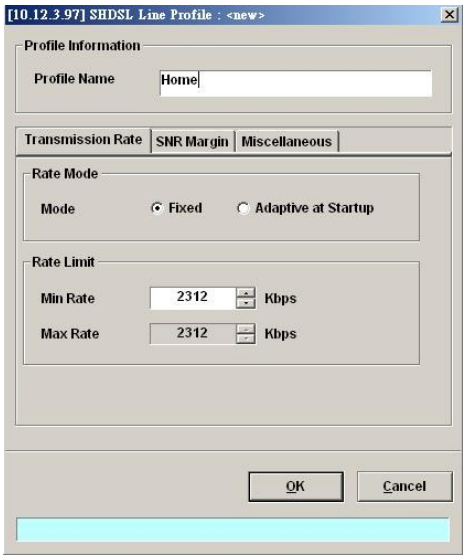


**Table 5-28 Add SHDSL Line Profile– Transmission Rate Dialog Description**

| Field | Description |
|---|---|
| **Profile Information** | |
| Profile Name | Enter to give a profile name |
| **Rate Mode** | |
| Fixed | Click to let the SHDSL loop to be of a fixed rate as specified by the 'Min Rate'. In this mode, the NE will fail to establish the connection with STU-R whenever it is not allowed in the physical loop environment. The failure may be due to the loop length, line quality, and so on. |
| Adaptive at Startup | Click to let the SHDSL loop to be of the rate adapted in the range specified by the 'Min/Max Rate'. |
| **Rate Limit** | |
| Min Rate | Choose your minimum rate. |
| Max Rate | Choose your maximum rate. |

**SNR Margin**

Click the **SNR Margin tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile–SNR Margin Dialog** as shown in Figure 5-39. Table 5-29 depicts the related parameters.

**Figure 5-39 Add SHDSL Line Profile– SNR Margin Dialog**

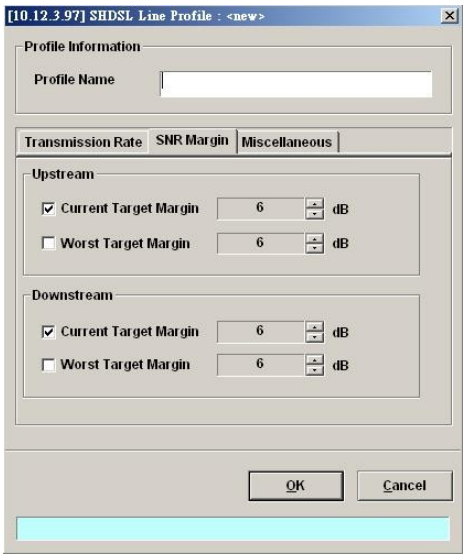



**Table 5-29 Add SHDSL Line Profile - SNR Margin Dialog Description**

| Field | Description |
|---|---|
| **Upstream / Downstream** | |
| Current Target Margin | It specifies the current target margin.<br>Default value is 6. |
| Worst Target Margin | It specifies the worst target margin.<br>Default value is 6. |

**Miscellaneous**

Click the **Miscellaneous tab** in **SHDSL Line Profile Dialog** to launch the **SHDSL Line Profile–Miscellaneous Dialog** as shown in Figure 5-40. Table 5-30 depicts the related parameters.

**Figure 5-40 Add SHDSL Line Profile– Miscellaneous Dialog**

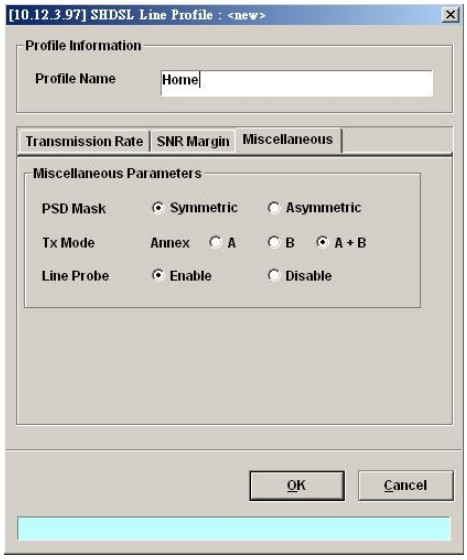



**Table 5-30 Add SHDSL Line Profile– Miscellaneous Dialog Description**

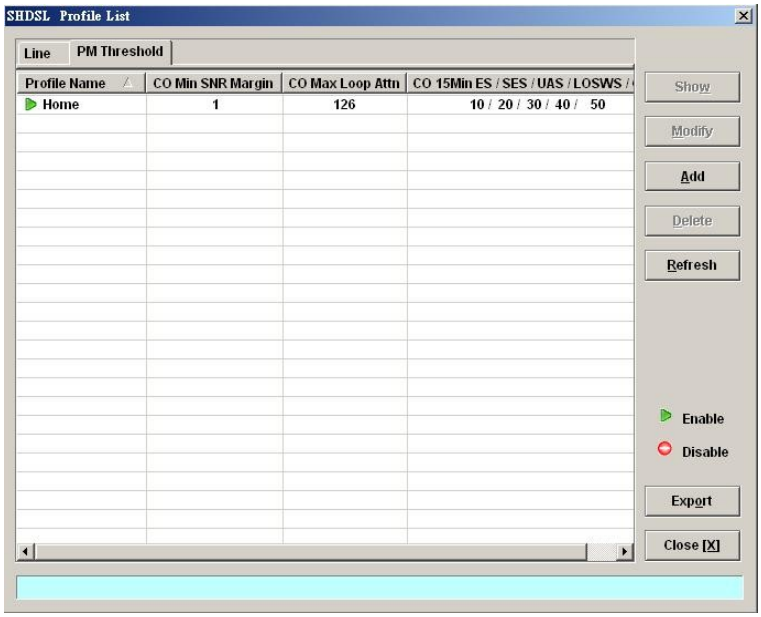
| Field | Description |
|---|---|
| **Miscellaneous Parameters** | |
| PSD Mask | It specifies the setting of PSD Mask to be symmetric or asymmetric |
| Tx Mode | It specifies the setting of Tx mode.<br>A: Indicates the ITU-T G.991.2 Annex A<br>B: Indicates the ITU-T G.991.2 Annex B<br>A+B: Compatible with ITU-T G.991.2 Annex A and Annex B. |
| Line Probe | Enable or disable the line probe state before training with STU-R.<br>Enable: To make the 'line rate limit' up to 2312Kbps.<br>Disable: To make the 'line rate limit' up to 1.5Mbps. |

### PM Threshold Profile

The PM threshold profile sets the threshold values for the error status generated in the ADSL line, and sets the system to report the threshold-over trap (alarm) to the AMS LCT when the set error threshold is over. Figure 5-41 lists SHDSL PM threshold profiles accommodated in the system and allows adding a new profile or deleting the existing profile, by system (NE) unit.

Click the **PM Threshold tab** to launch the **PM Threshold Dialog** as shown in Figure 5-41.

**Figure 5-41 SHDSL Profile List– PM Threshold Dialog**




Click ‘Add’ button to generate a PM threshold profile, each profile must have its unique profile name. Or select an existent profile and click ‘Modify’ to modify it. Figure 5-42 shows **Add SHDSL PM Threshold Profile Dialog**. Table 5-31 depicts the related parameters.

**Figure 5-42 Add SHDSL PM Threshold Profile Dialog**

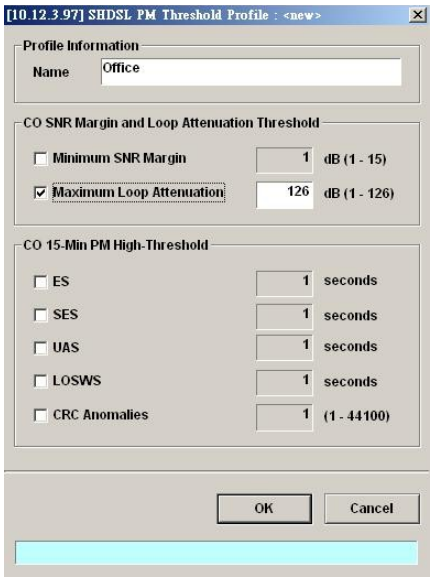


**Table 5-31 Add SHDSL PM Threshold Profile Dialog Description**

| Field | Description |
|---|---|
| **CO SNR Margin and Loop Attenuation Threshold**<br>This field indicates the minimum SNR margin and maximum loop attenuation.<br>When the minimum SNR margin is set to 10, if the current SNR margin is below 10 dB, a trap (alarm) occurs.<br>When the maximum loop attenuation is set to 100, if the current loop attenuation exceeds 100 dB, a trap (alarm) occurs. | |
| **CO 15-Min PM High-Threshold**<br>This field indicates the CO side errors. When the threshold is set to 10, if the count of specific errors exceeds 10 seconds for the last error accumulated, a trap (alarm) occurs. | |
| ES | It specifies the Error second (0 ~ 900 sec) |
| SES | It specifies the Several Error Second (0 ~ 900 sec) |
| UAS | It specifies the unavailable Second (0 ~ 900 sec) |
| LOSWS | It specifies the Loss of Synchronization Word Second (0 ~ 900 sec) |
| CRC Anomalies | It specifies the count of anomaly of Cyclic Redundancy Check (1 ~ 44100) |

# Configuring the VLAN Profile

VLAN Profile contains three categories of profiles.

- IP Traffic Profile
- TV Channel Profile
- Multicast Service Profile

As shown in Figure 5-25, NE forwards traffic on 2 kinds of connections, unicast connection and multicast connection, on the Data Level. For the unicast connection, it carries all traffic (unicast and broadcast) except multicast traffic. The attributes of unicast connection are specified by the IP Traffic Profile. As for the multicast connection, its attributes are specified by the TV Channel Profile. Moreover, the NE also supports to restrict the subscriber to receive a set of specific TV channels. Multicast Service Profile records the set of specific TV channels.

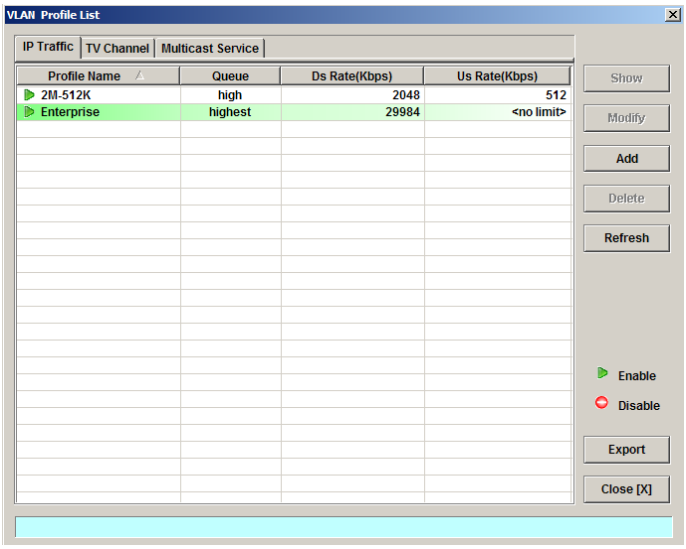
Click Configuration → Profile → VLAN Profile on **Main Menu** to open the **VLAN Profile List Dialog**.

## IP Traffic Profile

The IP traffic profile is design to specify the traffic attributes of the PVC on the ADSL line. The operator can create the IP Traffic Profile according to the Service Level Agreement (SLA) and apply it to the corresponding VC-to-VLAN on demand. (see Chapter 7 VC-to-VLAN Connection ).

Click the **IP Traffic** tab in **VLAN Profile List Dialog** to launch the **VLAN Profile List–IP Traffic Dialog** as shown in Figure 5-43.

**Figure 5-43 VLAN Profile List– IP Traffic Dialog**




Click ‘Add’ button to generate an IP traffic profile, each profile must have its unique profile name. Or select an existent profile and click ‘Modify’ to modify it. Figure 5-44 shows **Add xDSL IP Traffic Profile Dialog**. Table 5-32 depicts the related parameters.

**Figure 5-44 Add xDSL IP Traffic Profile Dialog**

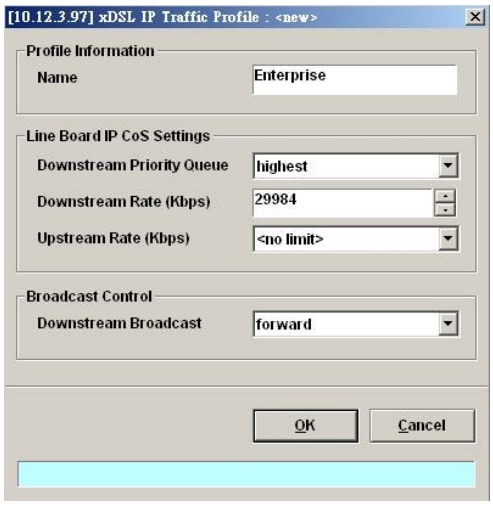


**Table 5-32 Add xDSL IP Traffic Profile Dialog Description**

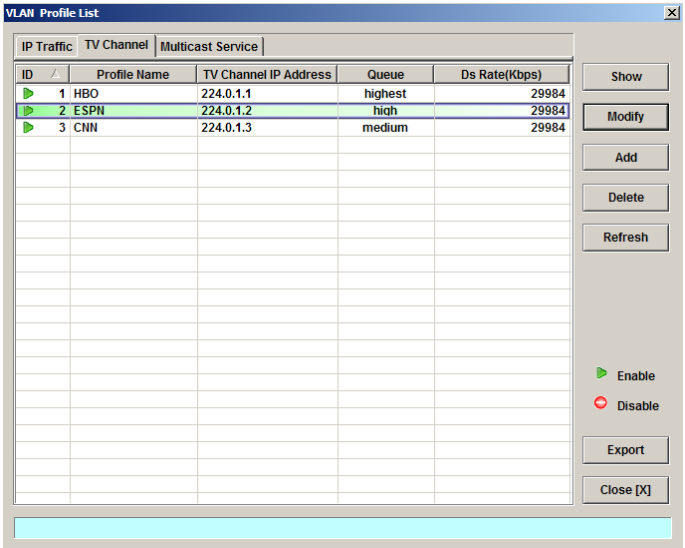
| Field | Description |
|---|---|
| **Profile Information** | |
| Name | Enter the name of traffic profile. |
| **Line Board IP CoS Setting** | |
| Downstream Priority Queue (Kbps) | It specifies the downstream priority queue.<br>Valid values are “Low”, “Medium”, “High” and “Highest”. |
| Downstream Rate (Kbps) | It specifies the maximum allowed downstream net-data rate. The drops drop packets whenever the downstream traffic exceeds the specified rate. |
| Upstream Rate (Kbps) | It specifies the maximum allowed upstream net-data rate. The drops drop packets whenever the user’s upstream traffic exceeds the specified rate.<br>Valid values are “no limit”, “32”, “64”, “128”, “256”, “384”, “512”, “768” |
| **Broadcast Control** | |
| Downstream Broadcast | This indicates the rule (forward or drop) for downstream broadcast traffic. |

## TV Channel Profile

The TV channel profile sets value of multicast group IP and the associated downstream bandwidth resource, it is a menu list of the TV channel (multicast group) provided by the Content Service Provider (CSP) or Application Service Provider (ASP).

Click the **TV Channel tab** in **VLAN Profile List Dialog** to launch the **VLAN Profile List–TV Channel Dialog** as shown in Figure 5-45.

**Figure 5-45 VLAN Profile List– TV Channel Dialog**




Click ‘Add’ button to generate a TV channel profile, each profile must have its unique profile name. Or select an existent profile and click ‘Modify’ to modify it. Figure 5-46 shows **Add xDSL TV Channel Profile Dialog.** Table 5-33 depicts the related parameters.

**Figure 5-46 Add xDSL TV Channel Profile Dialog**

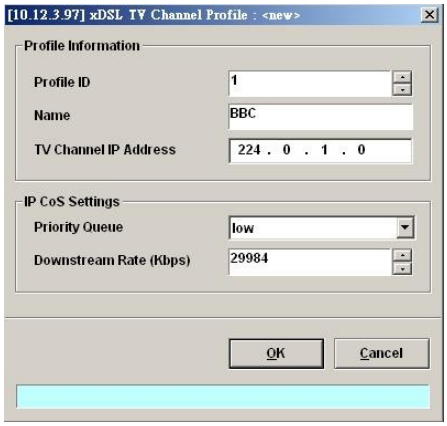



**Table 5-33 Add xDSL TV Channel Profile Dialog Description**

| Field | Description |
|---|---|
| **Profile Information** | |
| Profile ID | It specifies the TV channel ID |
| Name | Enter the TV channel name |
| TV Channel IP Address | It specifies the IP address of TV channel (multicast group IP) |
| **IP CoS Settings** | |
| Priority Queue | This specifies the priority queue of TV Channel address.<br>Valid values are “Low”, “Medium”, “High” and “Highest”. |
| Downstream Rate (Kbps) | It specifies the maximum allowed downstream net-data rate. The drops drop packets whenever the downstream traffic exceeds the specified rate. |

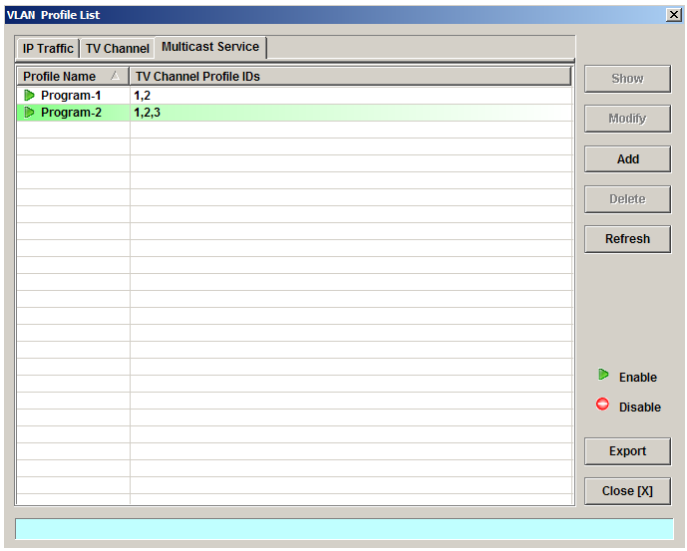
## Multicast Service Profile

The multicast service profile is a set of TV channel profiles. Once the TV channel profiles are created, you can generate the multicast service profile to bind suitable TV channel profiles. Each multicast service profile is viewed as a service package for the subscriber to book. The operator then applies the booked multicast service profile to the distinct VC-to-VLAN associated with the subscriber. (see Chapter 7).

Whenever the subscriber clicks his remote controller to watch a TV channel transmitted via the ADSL line, the set-top-box sends the corresponding IGMP report packet. The NE will forward IGMP packet if its multicast IP hits the associated multicast service profile. Otherwise, the NE drops the IGMP packet. As a result, the subscriber is restricted to watch the TV programs that he booked.

Click the **Multicast Service tab** in **VLAN Profile List Dialog** to launch the **VLAN Profile List–Multicast Service Dialog** as shown in Figure 5-47.

**Figure 5-47 VLAN Profile List– Multicast Service Dialog**




Click ‘Add’ button to generate a multicast service profile, each profile must have its unique profile name. Or select an existent profile and click ‘Modify’ to modify it. Figure 5-48 shows **Add xDSL Multicast Service Profile Dialog**. Table 5-34 depicts the related parameters.

**Figure 5-48 Add xDSL Multicast Service Profile Dialog**

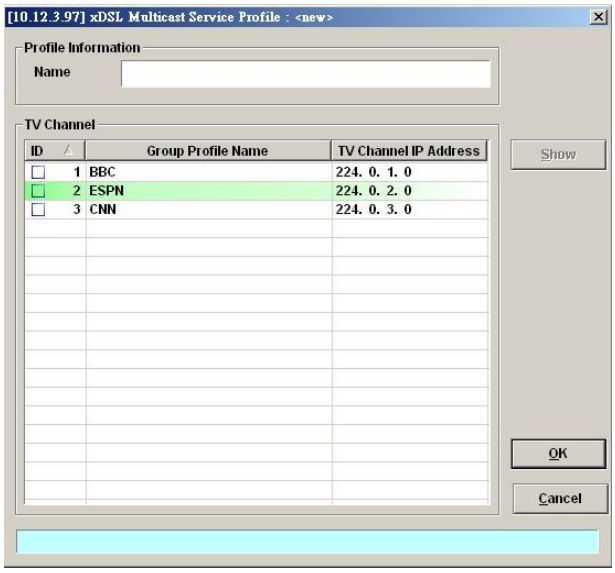



**Table 5-34 Add Multicast Service Profile Dialog Description**

| Field | Description |
|---|---|
| **Profile Information** | |
| Name | Enter the multicast service profile name. |
| **TV Channel** | |
| ID | The serial number for group profile. |
| Group Profile Name | It specifies the group profile name |
| TV Channel IP Address | It specifies the multicast IP address |
| Show | Click this button to view the detail information from List Table. |

# Configuring the Alarm Definition Profile

The alarm definition profile allows you to define the rule of alarm element in system. Through this profile, you are able to change the severity of individual alarm element and decide to report it or not. Alarm element is specified in the class of module or port. Different types of module may present different alarm element. Different types of port may also present different alarm element.

**Step 1** Click Configuration → Profile → Alarm Definition on **Main Menu** to open the **Alarm Definition List** Dialog as shown in Figure 5-49. Table 5-35 depicts the related parameters.

**Figure 5-49 Alarm Definition List Dialog**

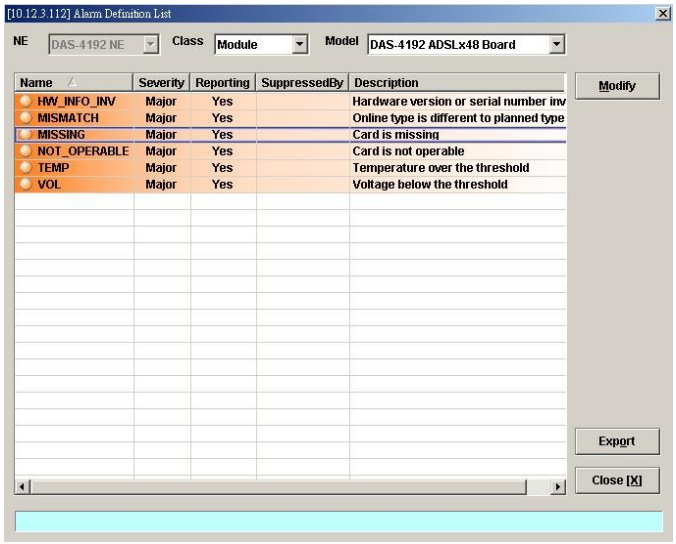



**Table 5-35 Alarm Definition List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Name | It specifies the alarm name. |
| Severity | It specifies the alarm severity. |
| Reporting | It specifies the reporting status. |
| Suppressed By | It specifies the rule of alarm suppression. |
| Description | It specifies the alarm description. |
| **Top Combo-box** | |
| NE | This indicates the current NE model. |
| Class | Use this combo-box to select the alarm class, shelf, module or port. |
| Model | Use this combo-box to select the card module or port module. |
| **Function Button** | |
| Modify | Select the item from List Table to modify. |
| Export | Click this button to save the contents of **Alarm Definition List** to the Personal Computer. |
| Close | Exit the **Alarm Definition List** Dialog. |

**Step 2** Click 'Modify' button to modify the Alarm Definition. Figure 5-50 shows **Modify Alarm Definition Dialog**, and Table 5-36 depicts the related parameters.

**Figure 5-50 Modify Alarm Definition Dialog**

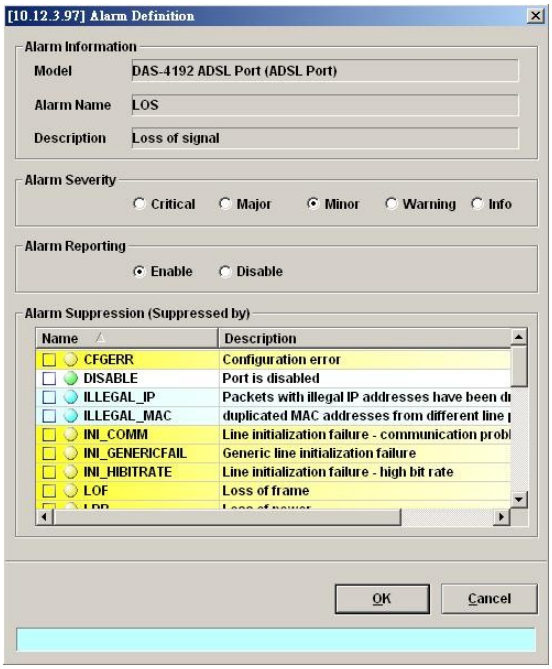



**Table 5-36 Modify Alarm Definition Dialog Description**

| Field | Description |
|---|---|
| **Alarm Information** | |
| Model | It specifies current module name under modifying. |
| Alarm Name | It specifies the alarm name. |
| Description | This describes the current selected alarm. |
| **Alarm Severity** | Check the radio button to set the alarm severity of the specified alarm. |
| **Alarm Reporting** | Enable or disable reporting of the specified alarm. |
| **Alarm Suppression (Suppressed by)** | |
| Name | Check the check box to choose which the specified alarm to be suppressed by. |
| Description | This describes the alarm's meaning. |


The alarm suppression (suppressed by) allows you to mask specific alarms when there are sequences occurred at the same time. For example, let the LOF (Loss of Frame) be configured to be suppressed by the LOS (Loss of Signal), the LOF will not be display on the screen but only LOS whenever the corresponding ADSL loop is cut.

# Chapter 6Interface Port Management

This chapter depicts the management of subscriber interfaces and GE network interfaces. This chapter contains the following sections.

- xDSL Line Interface Management
- GE Network Interface Management

## xDSL Line Interface Management

This section helps you to attach the profile to the xDSL line interfaces. The function buttons of xDSL Port List dialog provides shortcut of relative port setting. As the ADSL and SHDSL configuration are similar and hence illustrated together in this section.

**Step 1** Click Configuration → xDSL → ADSL Port Setting on **Main Menu** to open the **ADSL Port List** Dialog as shown in Figure 6-51. Table 6-37 depicts the related parameters.
Or
Click Configuration → xDSL → SHDSL Port Setting on **Main Menu** to open the **SHDSL Port List** Dialog. Table 6-37 depicts the related parameters.

**Figure 6-51 ADSL Port List Dialog**

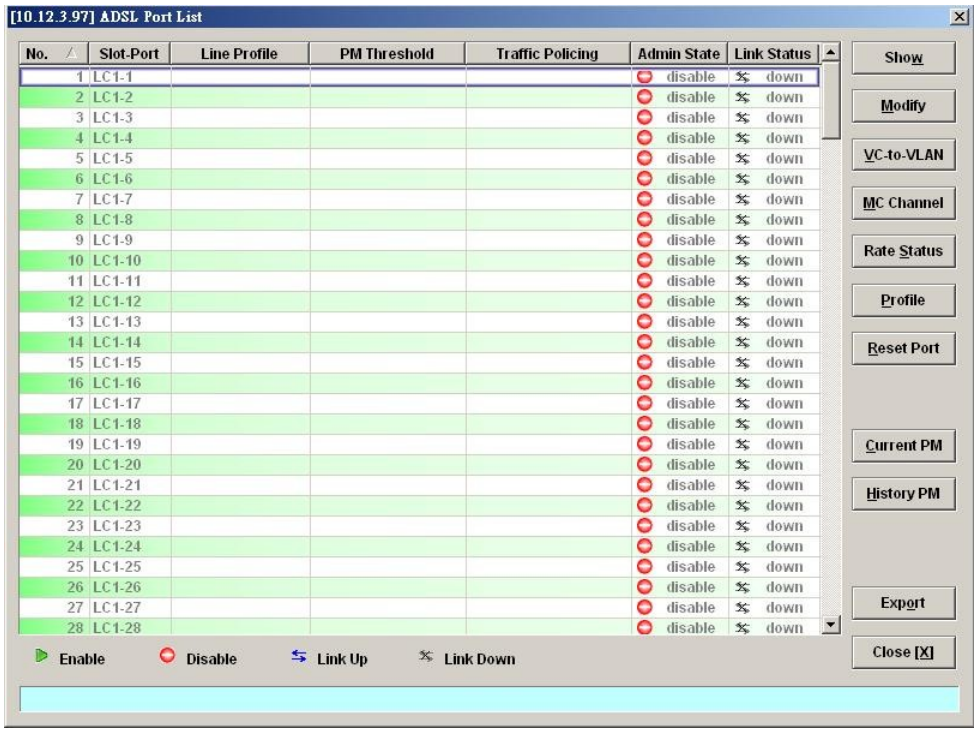


**Table 6-37 xDSL Port List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This specifies the serial number of entry of List Table. |
| Slot-Port | This specifies the location of ADSL port |
| Line Profile | This specifies the line profile. |
| PM Threshold | This specifies the PM threshold profile. |
| Traffic Policing | This specifies the Traffic Policing profile. [Only for the **ADSL Port List** Dialog] |
| Admin State | This specifies the administrative status (enable or disable) |
| Link Status | It specifies the link connection status. |
| **Function Button** | |
| Show | Click this button to show. |
| Modify | Click this button to modify. |
| VC-to-VLAN | Click this button to configure the VC-to-VLAN parameters |
| MC Channel | Click this button to configure the multicast channel related parameters. [Only for the **ADSL Port List** Dialog] |
| Rate Status | Click this button to monitor the connection rate status. |
| Profile | Click this button to arrange the profile setting. |
| Reset Port | Click this button to reset port |
| Current PM | Click this button to view the current performance |
| History PM | Click this button to view the historical performance |
| Export | Click this button to save the contents of **ADSL Port List** to the Personal Computer. |
| Close | Exit the **ADSL Port List** Dialog. |

**Step 2** Select an ADSL port and click 'Modify' button to modify the ADSL port. Figure 6-52 shows **ADSL Port Modification Dialog**. Table 6-38 depicts the related parameters.

**Figure 6-52 ADSL Port Modification Dialog**

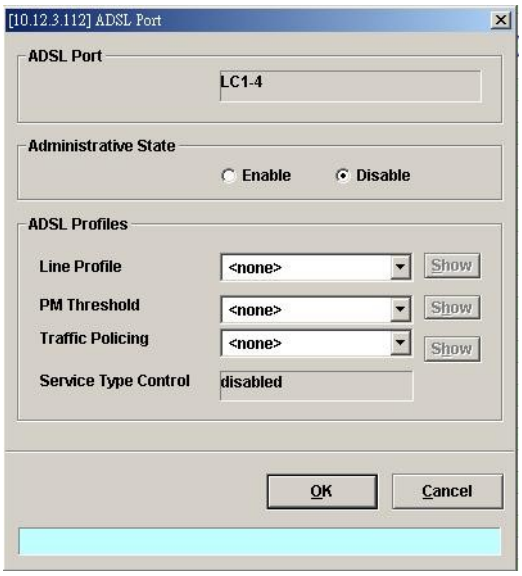


**Table 6-38 ADSL Port Modification Dialog Description**

| Field | Description |
|---|---|
| **ADSL Port** | This indicates the current ADSL Port under modification. |
| **Administrative State** | Enable or disable the specified ADSL port. |
| **ADSL Profiles** | |
| Line Profile | Use this combo-box to select an existent ADSL line profile. |
| PM Threshold | Use this combo-box to select an existent PM Threshold profile. |
| Traffic Policing | Use this combo-box to select an existent Traffic Policing profile. |
| Service Type Control | This indicates the state of Service Type Control (STC) of the selected ADSL line card. |
| **Function Button** | |
| OK | Press this button to commit setting. |
| Cancel | Press this button to cancel setting. |

NOTE Service Type Control (STC) only takes effect after the applied line card is reset.

NOTE To make the applied Traffic Policing Profile take effect, Service Type Control (STC) must be enabled.

For the SHDSL ports, follow the subsequent procedures.

**Step 3** Select an SHDSL port and click 'Modify' button to modify the SHDSL port. Figure 6-53 shows **SHDSL Port Modification Dialog**. Table 6-39 depicts the related parameters.

**Figure 6-53 SHDSL Port Modification Dialog**

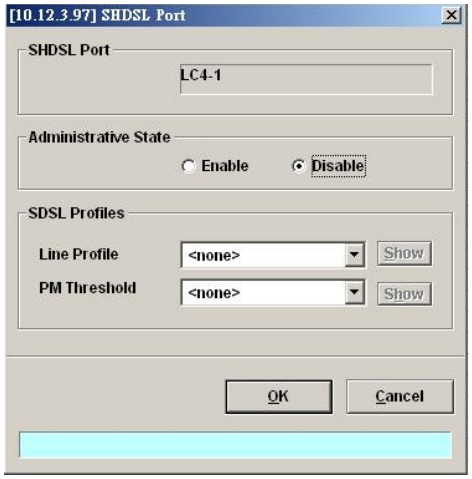


**Table 6-39 SHDSL Port Modification Dialog Description**

| Field | Description |
|---|---|
| **SHDSL Port** | This indicates the current SHDSL Port which is under modifying. |
| **Administrative State** | Enable or disable the specified SHDSL port. |
| **SHDSL Profiles** | |
| Line Profile | Use this combo-box to select an existent SHDSL line profile. |
| PM Threshold | Use this combo-box to select an existent PM Threshold profile. |
| **Function Button** | |
| OK | Press this button to commit setting. |
| Cancel | Press this button to cancel setting. |

NOTE In comparison with the **ADSL Port List** Dialog, the **SHDSL Port List** Dialog does not support the following function

- Traffic Policing
- Service Type Control

## GE Network Interface Management

There are two GE network interfaces, GE1 and GE2, for DAS4 series IP-DSLAM. GE1 is stated as the uplink GE port. All traffic from the xDSL line interface is forwarded to this interface by default. (i.e., the so-called port isolation) GE2 is stated as the subtended GE port, and it connects to other equipment and forward traffics to GE1 if none of LACP or RSTP is enabled.

**Step 1** Point mouse pointer at GE port object, click mouse right button Trunk → Port Setting on launched **Menu** to open the **Trunk Port List** Dialog as shown in Figure 6-54 and Table 6-40 depicts the related parameters.

**Figure 6-54 Trunk Port Dialog**

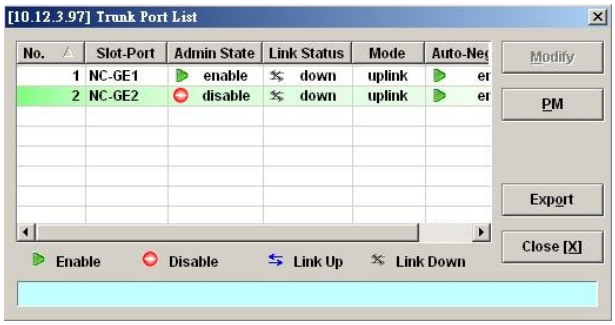


**Table 6-40 Trunk Port Dialog Description**

| Field | Description |
|---|---|
| **Trunk Port List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This indicates the location of trunk GE port. |
| Admin State | This indicates the administrative state of GE port. |
| Link Status | This indicates the operational state of GE port. |
| Mode | This indicates the mode of GE port, be either an uplink port or a subtended port. |
| Auto Negotiation | This indicates the auto negotiation status of GE port. |
| **Function Button** | |
| Modify | Click this button to modify. |
| PM | Click this button to show GE port's performance statistics. |
| Export | Click this button to save the contents of **Trunk Port List** to the Personal Computer. |
| Close | Exit the **Trunk Port List** Dialog. |

**Step 2** Click 'Modify' button to modify the trunk port. Figure 6-55 shows the **Trunk Port Configuration Dialog**, and Table 6-41 depicts the related parameters.

**Figure 6-55 Trunk Port Configuration Dialog**

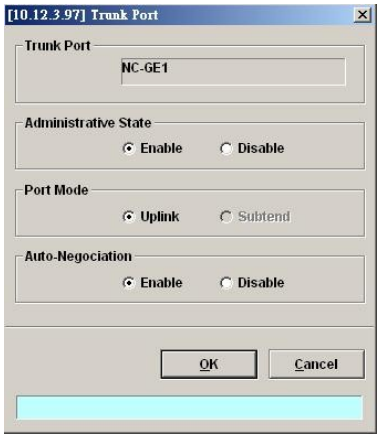
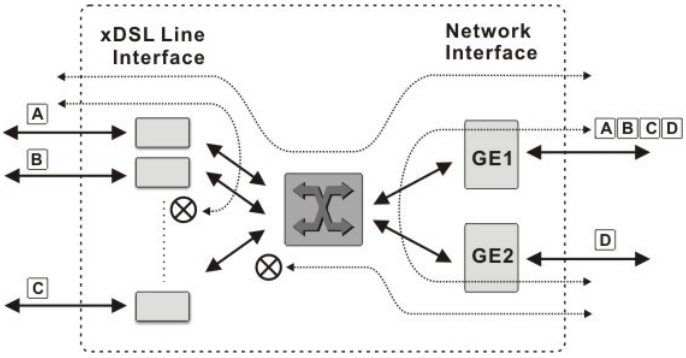



**Table 6-41 Trunk Port Configuration Dialog Description**

| Field | Description |
|---|---|
| Trunk Port | This indicates the GE port under configuring. |
| Administrative State | Enable or disable the specified GE port. |
| Port Mode | Setting the GE port to uplink mode or subtended mode. Subtended mode is only available on GE2, GE1 is always the uplink port. |
| Auto-Negotiation | Enable or disable the auto-negotiation mode of the specified GE port. |

**Figure 6-56 GE Network Interface Packet Forward Illustrate**




The DAS4 series IP-DSLAM support the so-called “Port Isolation”, all xDSL users can not communicate with each other.

Once the GE2 is configured as a subtended port, all the ingress traffic of GE2 is restricted to be forwarded to GE1.

## Link Aggregation (Static / Dynamic)

Link aggregation is to aggregate the 2 GE ports to provide higher uplink bandwidth. This dialog allows you to configure both static link aggregation and LACP (IEEE802.3ad, Link Aggregation Control Protocol).

Follow the subsequent procedures to configure the related parameters.

Click Configuration → Trunk → Link Aggregation on **Main Menu** to open the **Link Aggregation Setting Dialog** as shown in Figure 6-57. Table 6-42 depicts the related parameters.

**Figure 6-57 Link Aggregation Setting Dialog**

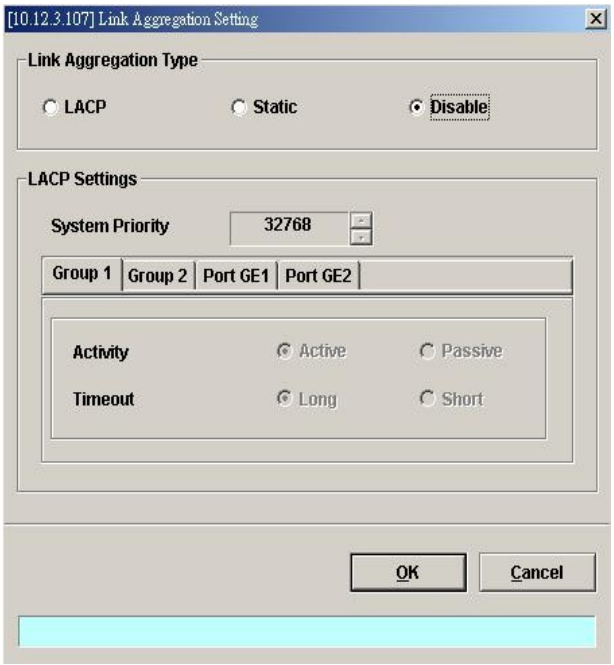


**Table 6-42 Link Aggregation Setting Dialog Description**

| Field | Description |
|---|---|
| **Link Aggregation Type** | |
| LACP | Set link aggregation type to “LACP” for GE ports. |
| Static | Set link aggregation type to “Static” for GE ports. |
| Disable | Check this radial button to forbid the GE ports to run any link aggregation function. |
| **LACP Settings** | |
| System Priority | It specifies the system priority required for the LACP. |
| **Group1/Group2 (Tab)** | |
| Activity | It specifies the activity of the GE ports of the specified group, active or passive, for the LACP.<br>**Passive**: The NE does not initiate LACP negotiation procedure on the specified group voluntarily, but waits for its LACP peer (in active state) initiates negotiation. The NE will form the aggregation link with its peer at the end of the negotiation procedure.<br>**Active**: The NE is willing to initiate the LACP negotiation procedure on the specified group and sends out an LACP packet voluntarily. The aggregation link will be formed if the other end is running in LACP active or passive mode. |
| Timeout | It specifies the interval of periodical transmitting LACP BPDU by the peer NE. If the NE does not receive the LACP BPDU after 3 consecutive specified intervals, the NE will remove the port from the aggregation link. For a busy aggregation link, it is recommended to set a short timeout to ensure that a disabled port is removed as soon as possible.<br>Its value is either long (30 seconds) or short (1 second). |
| **Port GE1/Port GE2 (Tab)** | |
| LACP Group | It specifies which the LACP group of GE1/GE2 is. |
| Port Priority | It specifies the port priority of GE1/GE2. |

## RSTP Configuration

The RSTP protocol smartly prevents the loop connection in your uplink networks. It improves the Spanning Tree Protocol (STP) by reducing the fail-over time whenever there is network topology change. The configuration of RSTP is divided to 2 parts. One is the system-wise configuration, which is described in the subsection “Bridge”. The other one is the port-specific configuration, which is described in the subsection “Port GE1/Port GE2”.

Follow the subsequent procedures to configure the related parameters.

Click Configuration → Trunk → RSTP Setting on **Main Menu** to open the **Rapid Spanning Tree Protocol for Trunk Ports** Dialog

**Bridge**

Click the **Bridge tab** in **Rapid Spanning Tree Protocol for Trunk Ports Dialog** to launch the **Rapid Spanning Tree Protocol for Trunk Ports – Bridge Dialog** as shown in Figure 6-58. Table 6-43 depicts the related parameters.

**Figure 6-58 Trunk RSTP Setting– Bridge Dialog**

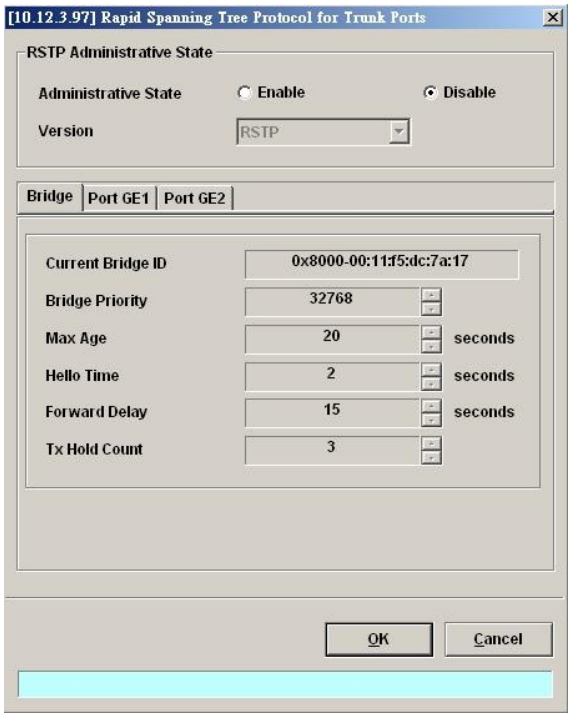



**Table 6-43 Rapid Spanning Tree Protocol for Trunk Ports– Bridge Dialog Description**

| Field | Description |
|---|---|
| **RSTP Administrative State** | |
| Administrative State | Enable or disable the RSTP function for GE ports. |
| Version | This specifies the RSTP version the NE runs. |
| **Bridge (Tab)** | |
| Current Bridge ID | It indicates an unique 8-octet bridge ID which consists of a 2-octet Bridge Priority and a 6-octet MAC address. |
| Bridge Priority | It specifies the 2-octet bridge priority. If the given value is lower than all the other L2 devices', the NE is selected as the root bridge as defined in IEEE 802.1d/ 802.1w.<br>Its valid range is through 0 to 61440 in steps of 4096 |
| Max Age | It specifies the maximum age of STP/RSTP information learned from the network on any port before it is discarded. |
| Hello Time | It specifies the amount of time between the transmission of configuration bridge PDUs by this node on any port when it is the root of the spanning tree or trying to become so. |
| Forward Delay | This specifies the time value that controls how fast a port changes its spanning state when moving towards the Forwarding state. The value determines how long the port stays in the Learning states, which precede the Forwarding state. This value is also used, when topology change has been detected and is underway, to age all dynamic entries in the Forwarding Database. |
| Tx Hold Count | This specifies the value used by the port Transmit state machine to limit the maximum transmission rate. |

NOTE It is noted that the following relationships have to be maintained.

2 x (***Forward Delay*** – 1 *second*) >= ***Max Age***
***Max Age*** >= 2 x (***Hello Time*** + 1 *second*)

### Port GE1/Port GE2

Click the **Port GE1/Port GE2** tab in **Rapid Spanning Tree Protocol Dialog** to launch the **Rapid Spanning Tree Protocol –Port GE1/Port GE2 Dialog** as shown in Figure 6-59. Table 6-44 depicts the related parameters.

**Figure 6-59 Trunk RSTP Setting– Port GE1/Port GE2 Dialog**

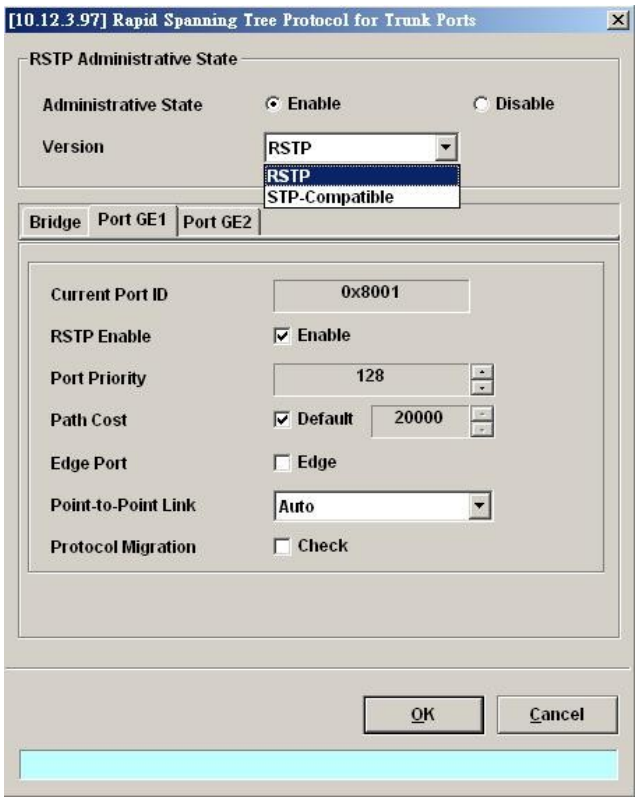


**Table 6-44 RSTP for Trunk Ports– Port GE1/Port GE2 Dialog Description**

| Field | Description |
|---|---|
| **RSTP Administrative State** | |
| Administrative State | Enable or disable the RSTP function for GE ports. |
| Version | This specifies the RSTP version the NE runs. |
| **Port GE 1 / Port GE 2 (Tab)** | |
| Current Port ID | It specifies the GE1/GE2 port's port ID so far. |
| Port Enable | The current RSTP enabled/disabled status of the port |
| Port Priority | It specifies the port priority of a port. In the case that more than one ports form a loop in the NE, the RSTP/STP will block the ports of lower Port Priority (higher numerical value). Only the port of higher Port Priority (lower numerical value) is to be at the Forwarding state.<br>Its valid range is through 0 to 240 in steps of 16 |
| Path Cost | It specifies the contribution of this port to the path cost of paths towards the spanning tree root bridge. A port of higher speed should be configured with lower numerical value.<br>When set it to be "default", its value follows the definition of IEEE 802.1d Table 17-3. |
| Edge Port | Check to let the port become edge port in spanning tree topology. An edge port on an RSTP switch will immediately transition to the forwarding state. However, the port will be a non-edge port if the NE receives RSTP BPDU on that port. And the port state and port role of the non-edge port will be determined by the RSTP hereafter. |
| Point-to-Point Link | Select YES to force this port always be treated as if it is connected to a point-to-point link. Select NO to let this port be treated as having a shared media connection. AUTO indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregately, or if the MAC entity is configured for full duplex operation, either through auto-negotiation or by management means. |
| Protocol Migration | Check to force this port to transmit RSTP BPDUs. |

When set Path Cost to be "default", its value follows the definition of IEEE 802.1d Table 17-3 as follows.

| Link Speed | Recommended value | Recommended range | Range |
|---|---|---|---|
| <=100 Kb/s | 200 000 000[a] | 20 000 000–200 000 000 | 1–200 000 000 |
| 1 Mb/s | 20 000 000[a] | 2 000 000–200 000 000 | 1–200 000 000 |
| 10 Mb/s | 2 000 000[a] | 200 000–20 000 000 | 1–200 000 000 |
| 100 Mb/s | 200 000[a] | 20 000–2 000 000 | 1–200 000 000 |
| 1 Gb/s | 20 000 | 2 000–200 000 | 1–200 000 000 |
| 10 Gb/s | 2 000 | 200–20 000 | 1–200 000 000 |
| 100 Gb/s | 200 | 20–2 000 | 1–200 000 000 |
| 1 Tb/s | 20 | 2–200 | 1–200 000 000 |
| 10 Tb/s | 2 | 1–20 | 1–200 000 000 |

## CoS Configuration

In order for the NE to play the role of edge (boundary) node of a DiffServ domain, the NE supports the the configurable mapping among the following entities.

- IEEE 802.1p User Priority as configured in the VC-to-VLAN configuration.
- Queue (Traffic Class) on each uplink trunk GE port
- DiffServ Code Point (DSCP) of the IP frame to be forwarded via the uplink trunk GE port.

**User priority:** The IEEE 802.1p user priority is a label carried with the frame that communicates the requested priority to the next hop (bridge, router or end systems). Typically, the user priority is not modified in the intermediate hop. Thus, the user priority has end-to-end significance across bridged LANs.

**Queue (traffic class):** A bridge can be configured so that multiple queues are used to hold frames waiting to be transmitted on a given outbound port, in which case the traffic class is used to determine the relative priority of the queues. Whenever the bridge's physical port is configured as strict priority (SP), all waiting frames at a higher traffic class are transmitted before any waiting frames of a lower traffic class. As with access priority, traffic class is assigned by the bridge on the basis of incoming user priority.

Currently, the NE supports 8 traffic classes (queues) on its GE ports with the strict priority (SP) scheduling policy only.

**Differentiated Service Code Point (DSCP):** RFC 2474/2475 defines the DiffServ field, which replaces the Type of Service (ToS) field in the IPv4 header. It facilitates the network devices behind IP-DSLAM to fulfill the end-to-end QoS.
Figure 6-60 shows the DiffServ field.

**Figure 6-60 DiffServ Field**


The most significant six bits of DiffServ field are called DSCP. The network device classifies packets and marks them with appropriate DSCP value. According to these values, other network devices in the DiffServ domain can make decision for packets behavior and provide the Quality of Service properly.

A network device classify the priorities of traffic with 6 different levels, they are Express Forwarding (EF), Assured Forwarding Class 4 (AF4), Assured Forwarding Class 3 (AF3), Assured Forwarding Class 2 (AF2), Assured Forwarding Class 1 (AF1) and Best Effort (BE). These forwarding classes are represented by the first 3 bits of DSCP as shown in Table 6-45. Moreover, the network device differentiates three drop precedence in AF4~AF1 respectively into last 3 bits of DSCP, they are Low Drop Precedence, Medium Drop Precedence and High Drop Precedence.

**Table 6-45 DSCP: DS3~DS5 Bit Representation**

| Decimal representation of bits DS5, DS4 and DS3 | Description |
|---|---|
| 7 | For link layer and routing protocol keep alive. |
| 6 | For using for IP routing protocols. |
| 5 | Express Forwarding (EF) |
| 4 | Assured Forwarding Class 4 (AF4) |
| 3 | Assured Forwarding Class 3 (AF3) |
| 2 | Assured Forwarding Class 2 (AF2) |
| 1 | Assured Forwarding Class 1 (AF1) |
| 0 | Best Effort (BF) |

**Expedited Forwarding:** The code point of EF is 101110, the packets marked with EF is to be transmitted with highest priority, lowest drop probability.

**Assured Forwarding:** Assured Forwarding PHB is suggested for applications that require a better reliability than the best-effort service. There are 4 classes of AF. Within Each AF class, there are 3 drop precedences. In case of congestion, the drop precedence of a packet determines the relative importance of the packet within the AF class. Table 6-46 indicates the relationship of the 4 AF class.

**Table 6-46 DSCP Class Relationship**

| | Class | | | |
|---|---|---|---|---|
| **Drop** | **AF1** | **AF2** | **AF3** | **AF4** |
| Low Drop Probability | 001010 (AF11) | 010010 (AF21) | 011010 (AF31) | 100010 (AF41) |
| Medium Drop Probability | 001100 (AF12) | 010100 (AF22) | 011100 (AF32) | 100100 (AF42) |
| High Drop Probability | 001110 (AF13) | 010110 (AF23) | 011110 (AF33) | 100110 (AF43) |

Follow the subsequent procedure to configure the Trunk CoS mapping.

Click Configuration → Trunk → CoS Mapping on **Main Menu** to open the **CoS Priority – Queue Mapping Dialog** as shown in Figure 6-61. Table 6-47depicts the related parameters.

**Figure 6-61 Trunk CoS Mapping and DSCP Re-mapping Dialog**

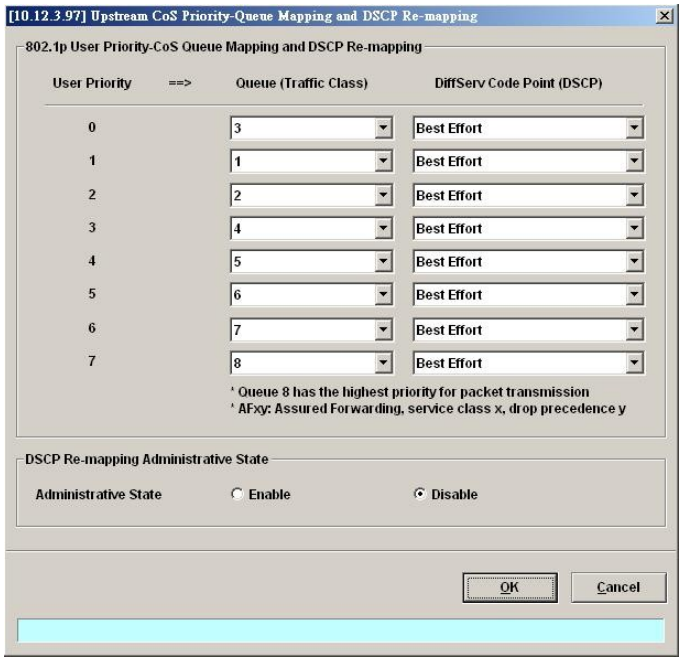



**Table 6-47 Trunk CoS Mapping and DSCP Re-mapping Dialog Description**

| Field | Description |
|---|---|
| **802.1p User Priority-CoS Queue Mapping and DSCP Re-mapping** | |
| User Priority | This indicates the 802.1p user priority as configured in the VC-to-VLAN configuration |
| Queue (Traffic Class) | Use this combo-box to set the mapping relation between each 802.1p and CoS queues on the uplink trunk GE port |
| DiffServ Code Point (DSCP) | Use this combo-box to set the new DSCP value on the IP frame to be forwarded via the uplink trunk GE port. |
| **DSCP Re-mapping Administrative State** | |
| Administrative State | Enable or disable the DSCP Re-mapping function. |

## Manual VLAN Setting

This section depicts the manual VLAN-member port setting procedure of GE1 and GE2. The operator needs to choose the VLAN between 1 and 4094 to apply to GE ports when the following cases hold.

- GE1 port and GE2 port on NC is configured as tagged-only mode. (See Section "Constructing the NE Objects")
- GE2 port is configured as a subtended port. (See "Figure 6-55 Trunk Port Configuration Dialog")

Follow the subsequent procedures to configure the related parameters.

**Step 1** Click Configuration → Trunk → Manual VLAN Setting on **Main Menu** to open the **Manual VLAN Setting** Dialog as shown in Figure 6-62. Table 6-48 depicts the related parameters.

**Step 2** Click the button to change its color to blue to make both the GE ports join as the member port of the VLAN in interest.
For example, click the button positioned at the cross of the cloumn"10" and row "91-100" will make both the GE ports join as the member port of the VLAN of VLAN-

ID=100.

**Figure 6-62 Manual VLAN Setting Dialog**

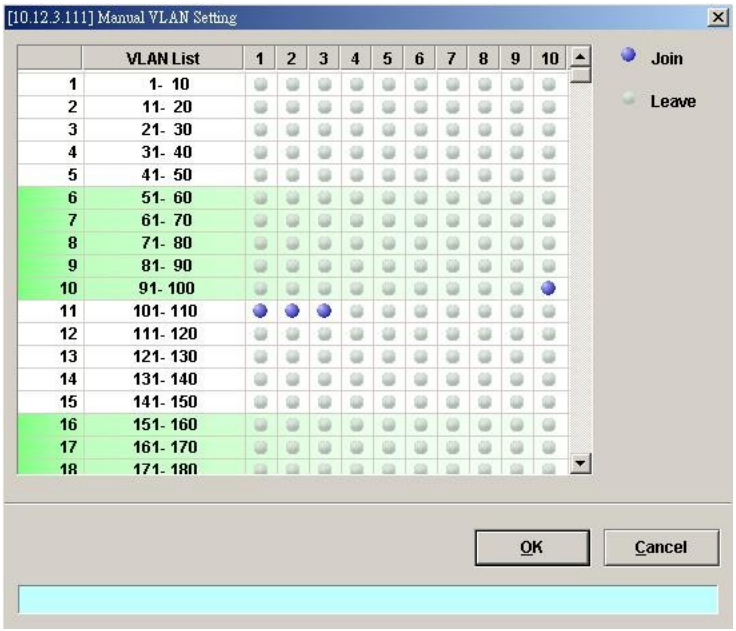



**Table 6-48 Manual VLAN Setting Dialog Description**

| Field | Description |
|---|---|
| **VLAN List** | |
| The combination of VLAN List column and VLAN List row specifies a VLAN.<br>For example, the button positioned at the cross of the cloumn"1" and row "101-110" indicates the VLAN of VLAN-ID=101. | |
| **Fuction Button** | |
| Join | The blue button indicates the both the GE ports are the member ports of VLAN in interest. |
| Leave | The grey button indicates the both the GE ports are not the member ports of VLAN in interest. |

# Chapter 7Connection Port Management

This chapter describes data channel connection and access services filter control.

This chapter contains the following sections:

- VC-to-VLAN Connection Management
- Access Control List
- Multicast Service Management
- Multicast Service
- System Services Configuration

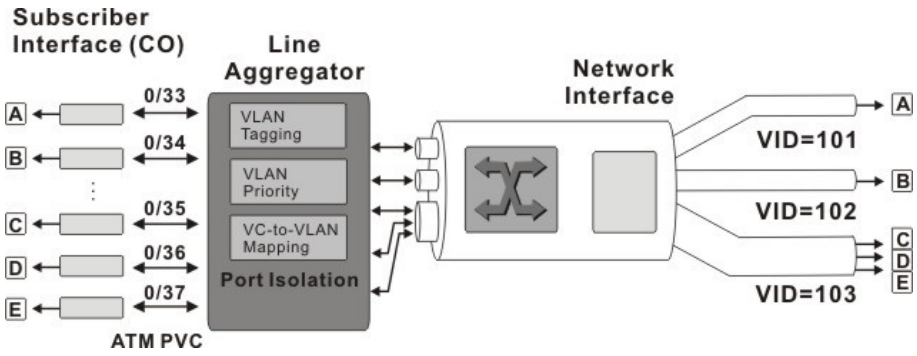
## VC-to-VLAN Connection Management

The VC-to-VLAN setting can easily define the multiple to one or one to one mapping; you can group different PVCs to a single VLAN ID as well as single PVC to one VLAN mapping. Figure 7-63 illustrates the basic principle for VLAN assignment in the DAS4 Series IP-DSLAM. As shown in Figure 7-63, the NE forwards five data flows, A~E, which may be either owned by the same subscriber or by different subscribers. It is noted that these data flows are conveyed in five individual ATM PVCs, and they are grouped into 3 individual VLANs.

NOTE

The NE supports up to 8 PVCs per xDSL port .
The NE supports up to 4094 VLANs per system .

**Figure 7-63 VC-to-VLAN Mapping Illustrate**




According to IETF RFC2684, an IP packet is encapsulated in either bridged mode or routed mode. The VC-to-VLAN settings are similar but not the same in these two encapsulation modes. This section depicts their configuration procedures together.

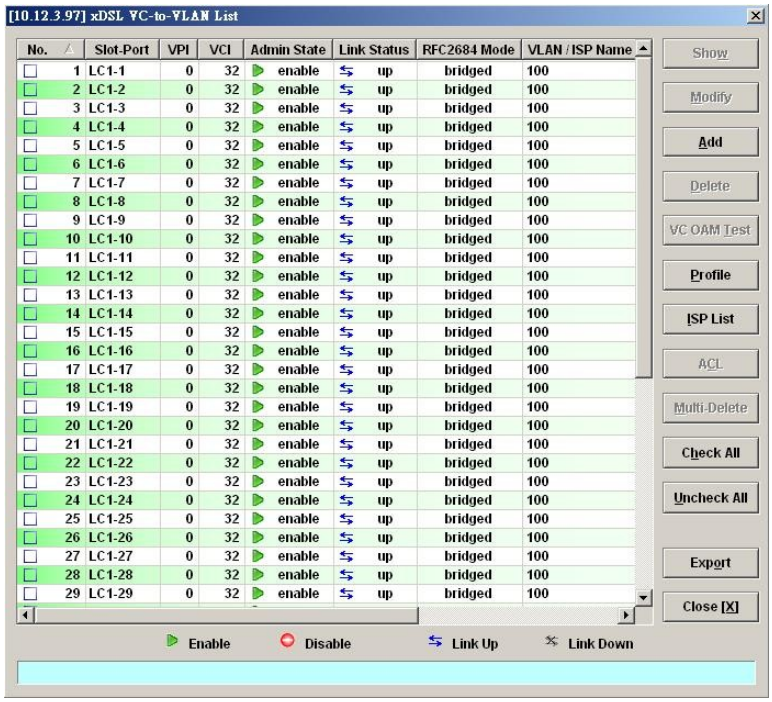
NOTE

The VC-to-VLAN configuration procedures are the same to both the ADSL port and SHDSL port.

Follow the subsequent procedure to manage your VC-to-VLAN connectivity on a specific xDSL port.

**Step 1** Click Configuration → xDSL → VC-to-VLAN on **Main Menu** to open the **xDSL VC-to-VLAN List** Dialog as shown in Figure 7-64.

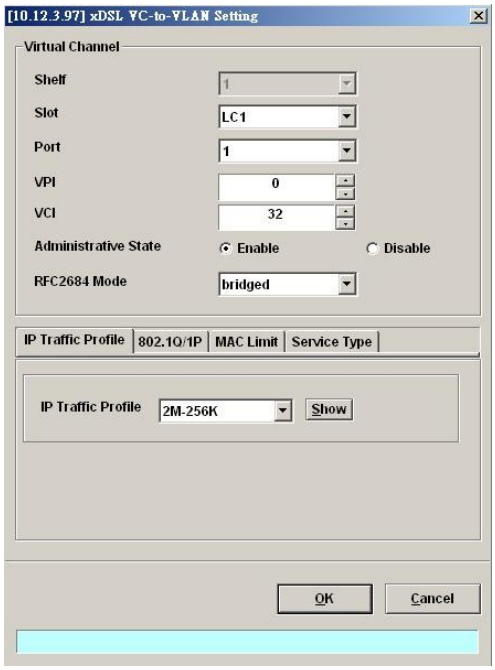
**Figure 7-64 xDSL VC-to-VLAN List Dialog**



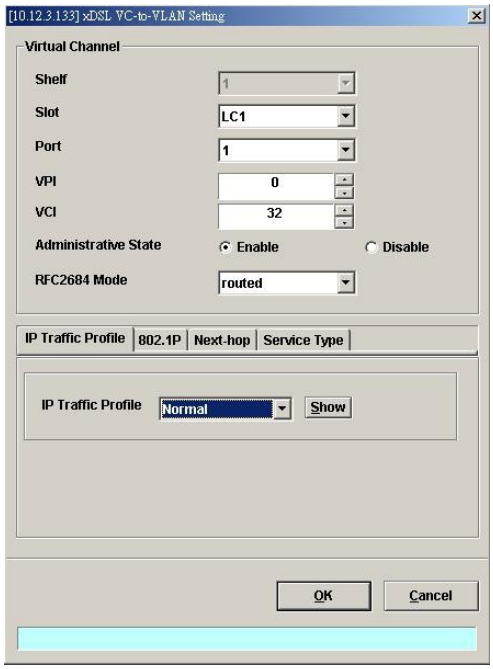

**Step 2** Click on the 'Add' button on the right hand side of Figure 7-64 to display the window (Figure 7-65) for adding new PVC and configuring the associated setting. **Figure 7-65** ~ Figure 7-70 show the corresponding configuration dialogs in the RFC2684 bridged mode and routed mode. Click either one tab to launch the corresponding dialog to configure the parameters. Table 7-49 depicts the related configuration parameters

According to IETF RFC2684, an IP packet is encapsulated in either bridged mode or routed mode. The VC-to-VLAN settings are similar but not the same in these two encapsulation modes.

**Figure 7-65 xDSL VC-to-VLAN Setting – IP Traffic Dialog**




(a) IP Traffic Dialog in RFC2684 bridged mode




(b) IP Traffic Dialog in RFC2684 routed mode

**Figure 7-66 xDSL VC-to-VLAN Setting – 802.1Q/1P Dialog (only for the RFC2684 bridged mode)**

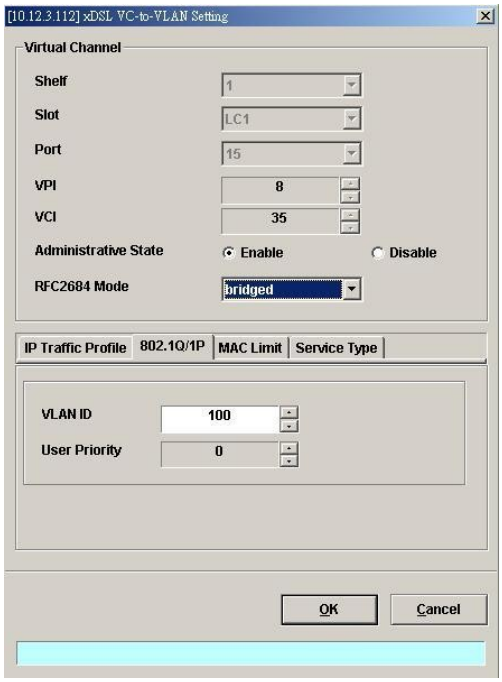



**Figure 7-67 xDSL VC-to-VLAN Setting – 802.1P Dialog (only for the RFC2684 routed mode)**

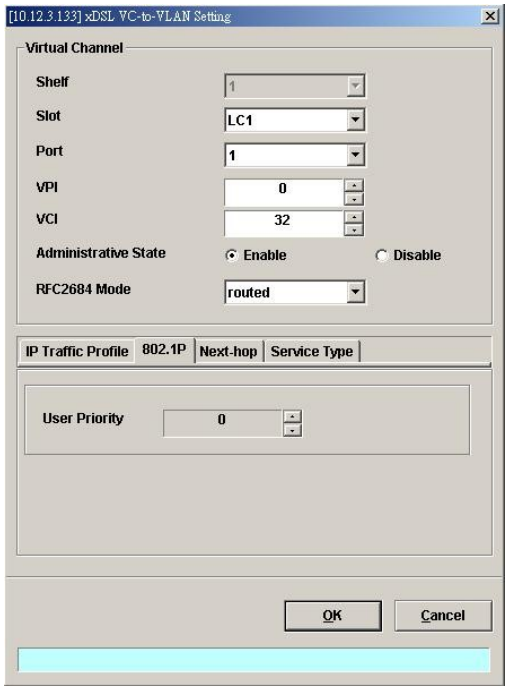


**Figure 7-68 xDSL VC-to-VLAN Setting – MAC Limit Dialog (only for the RFC2684 bridged mode)**

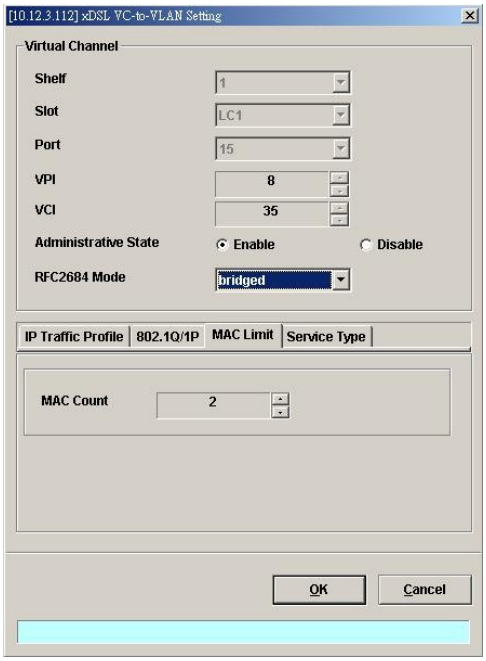



**Figure 7-69 xDSL VC-to-VLAN Setting – Next-hop Dialog (only for the RFC2684 routed mode)**

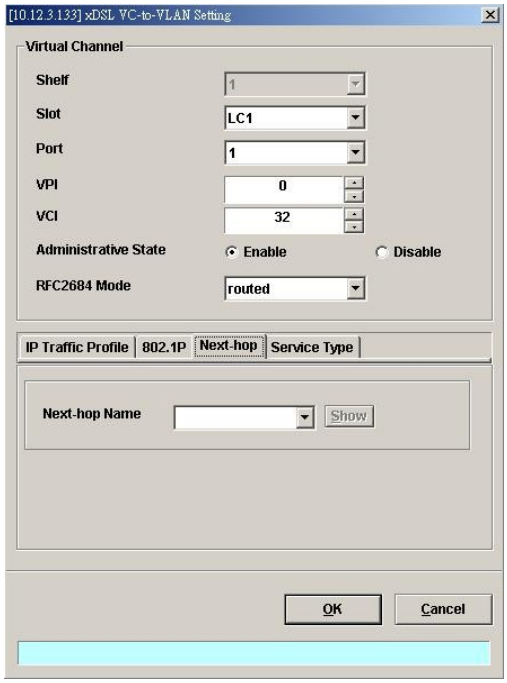
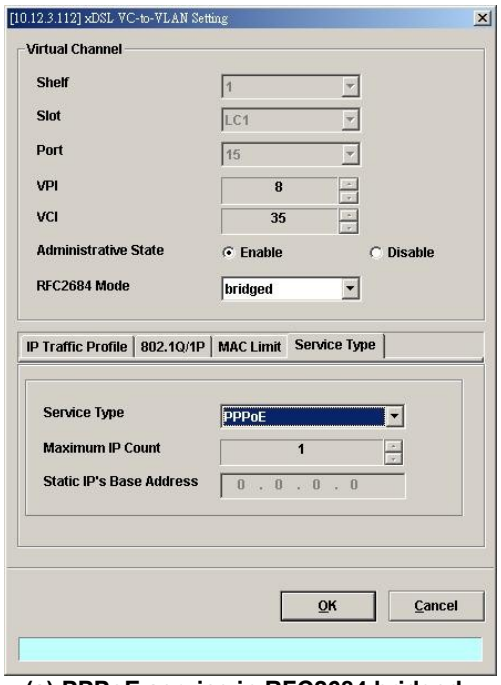
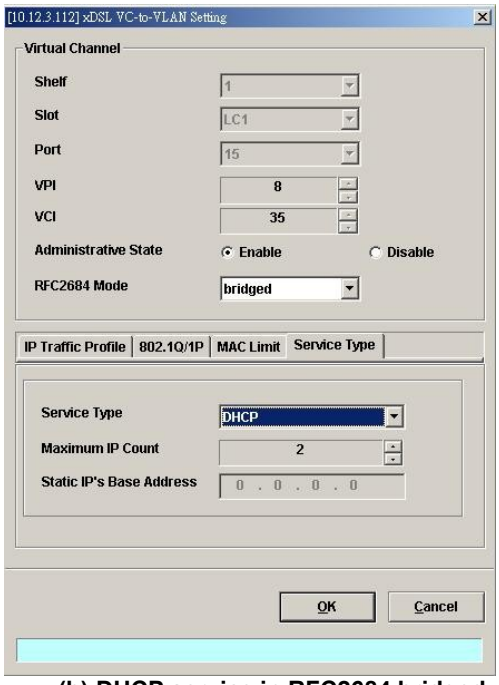


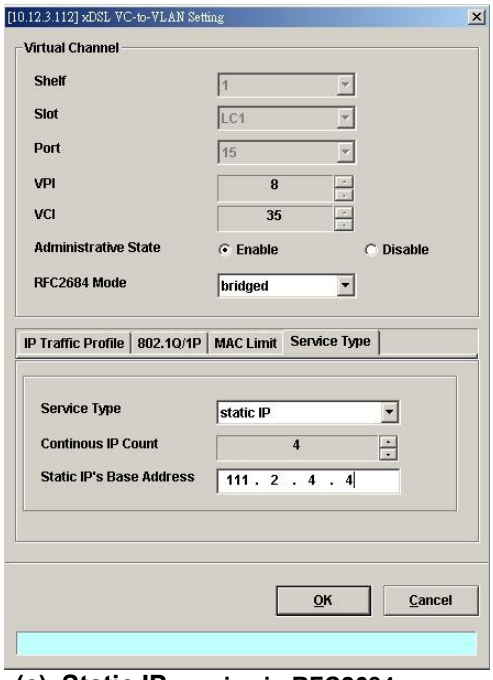
**Figure 7-70 xDSL VC-to-VLAN Setting – Service Type Dialog**



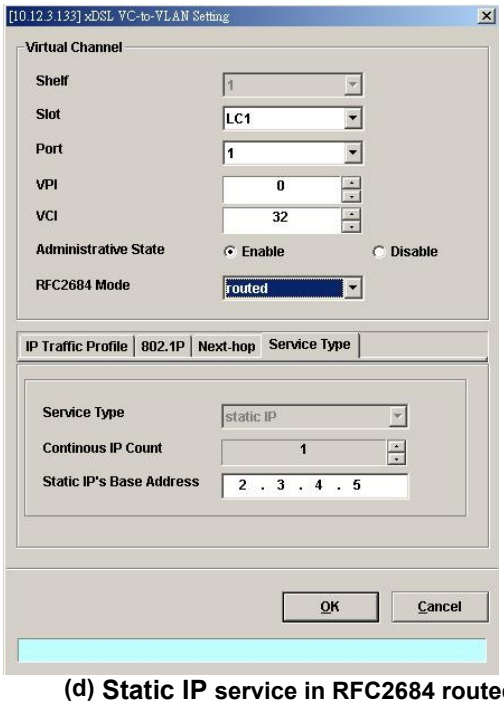

(a) PPPoE service in RFC2684 bridged mode




(b) DHCP service in RFC2684 bridged mode




(c) Static IP service in RFC2684 bridged mode




(d) Static IP service in RFC2684 routed mode

**Table 7-49 xDSL VC-to-VLAN Setting Description**

| Field | Description |
|---|---|
| **Virtual Channel** | |
| Shelf, Slot, Port | This specifies the shelf-slot-port. |
| VPI | It specifies the VPI value |
| VCI | It specifies the VCI value |
| Administrative State | It specifies the state of this VC-VLAN to enable or disable. |
| RFC2684 Mode | It specifies the RFC 2684 mode, (Bridge or Route) |
| **IP Traffic Profile Dialog** | |
| IP Traffic Profile | This specifies the IP traffic profile |
| **802.1Q/1P Dialog** [only for RFC2684 bridged mode] | |
| VLAN ID | This specifies the VLAN ID value |
| User Priority | This specifies the VLAN priority |
| **802.1P Dialog** [only for RFC2684 routed mode] | |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| **Next-hopDialog** [only for RFC2684 routed mode] | |
| Next-hop name | It specifies the next-hop name as specified in the section 'ISP Information for IP over ATM' of Chapter 7. |
| **MAC Limit Dialog** [only for RFC2684 bridged mode] | |
| MAC Count | This specifies the number of subscriber's MACs allowed for the corresponding VC-to-VLAN connection. |
| **Service Type Dialog** | |
| Service Type | This specifies the service type to be allowed on the PVC of individual subscriber.<br>In RFC2684 routed mode, the following service type is supported.<br>● Static IP<br>In RFC2684 bridged mode, the following three service types are supported.<br>● PPPoE<br>● DHCP<br>● Static IP |
| Maximum IP Count [only for DHCP Service] | This indicates the number of IP to be allowed while DHCP is selected |
| Continuous IP Count [only for Static IP Service] | This indicates the number of IP to be allowed while Static IP is selected |
| Static IP's Basic Address [only for Static IP Service] | This specifies the base of the IP address if the service type is Static IP |

Enabling the Service Type Control makes the NE to provide the IP/MAC anti spoofing function.

In the case that the subscriber acquires his IP address dynamically via PPPoE or DHCP, the NE will block the subscriber's traffic before a valid IP address assigning. Once the subscriber possesses a valid dynamic or static IP, the NE will just forward the packet of valid source IP/MAC addresses. IN other words, the NE drops the subscriber's traffic of invalid source IP/MAC addresses.

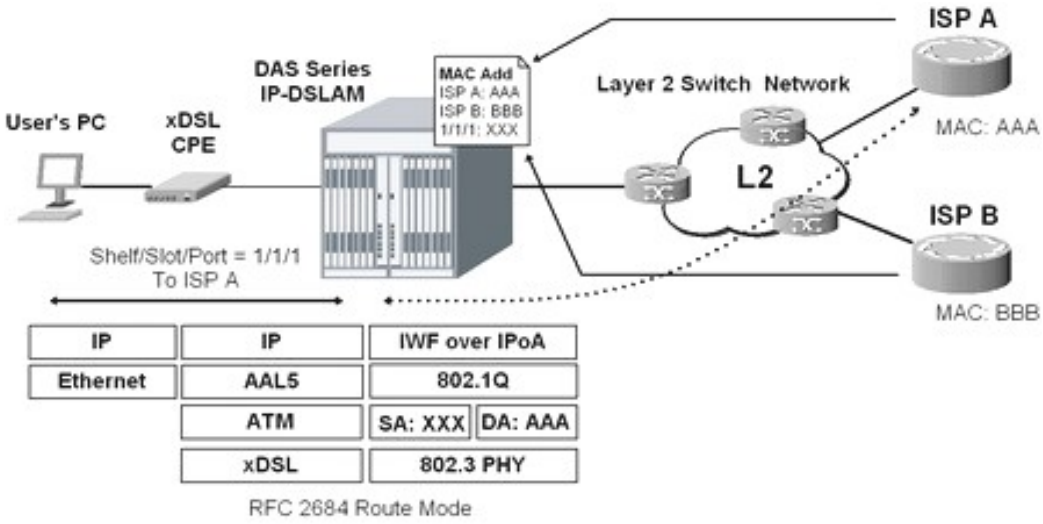
Whenever the service type is specified as “Static IP Service”, it is noted that the following relationship should be maintained.

IP Address Increment/Port ≥ Continuous IP Count

## ISP Information for IP over ATM

In the RFC 2684 routed mode, IP packets are directly encapsulated, i.e., no MAC layer is presented. Through the IWF (Inter-Work Function) of IPoA of IP-DSLAM, it needs to append the Ethernet MAC layer for particular subscriber interface, the source MAC address is specially generate by IP-DSLAM, and the destination MAC address is the next-hop router toward the ISP’s router. The NE determines the MAC address of next-hop router by the (Address Resolution Protocol (ARP). Figure 7-71 illustrates an example of the IWF in the case of RFC 2684 routed mode.

**Figure 7-71 RFC 2684 Route Mode Connection Method**




Follow the subsequent procedure to launch the ISP Information dialog to resolve the MAC address by just specifying the Next-hop’s IP address.

**Step 1** Click Configuration → xDSL → Next-hop Info for IP over ATM on **Main Menu** to open the **Next-hop Info for IP over ATM** Dialog as shown in Figure 7-72 and Table 7-50 depicts the related parameters.

**Figure 7-72 xDSL Next-hop List for IPoA Dialog**

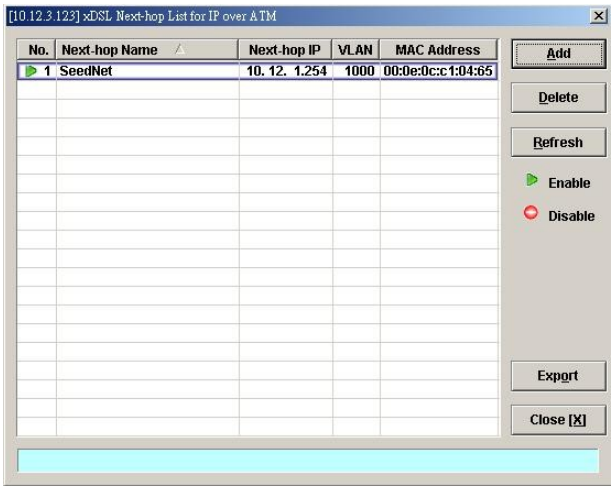



**Table 7-50 xDSL Next-hop List for IPoA Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Next-hop Name | It specifies the Next-hop name. |
| Next-hop IP | It specifies the Next-hop router IP. |
| VLAN | It specifies the VLAN grouping number for Next-hop connection. |
| MAC Address | It specifies the MAC address of the next-hop router toward the ISP's router. |
| **Function Button** | |
| Add | Click this button to add a new Next-hop entry |
| Delete | Click this button to remove the Next-hop entry |
| Refresh | Click this button to refresh the List Table |
| Export | Click this button to save the contents of **xDSL Next-hop List for IPoA** to the Personal Computer. |
| Close | Exit the **xDSL Next-hop List for IPoA** Dialog. |

**Step 2** Click 'Add' button to launch the **xDSL Next-hop for IPoA Dialog. Figure 7-73** shows **xDSL Next-hop for IPoA Dialog,** and Table 7-51 depicts the related parameters.

**Figure 7-73 Add xDSL Next-hop for IPoA Dialog**

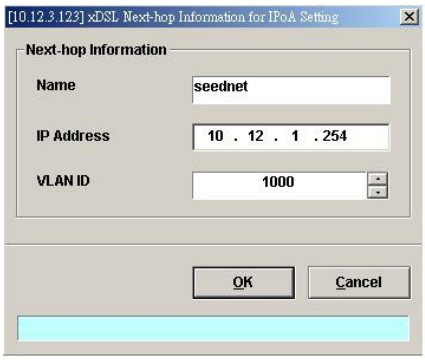


**Table 7-51 Add xDSL Next-hop for IPoA Dialog Description**

| Field | Description |
|---|---|
| **Next-hop Information** | |
| Name | This specifies the Next-hop name. |
| IP Address | This specifies the Next-hop router IP. |
| VLAN ID | This specifies the VLAN grouping number for Next-hop connection. |

# Access Control List

The NE supports packet filtering functions allows you to forward or drop subscriber traffics received on the subscriber interfaces.

- NetBIOS/NetBEUI Packet Filtering
- Source MAC Access Control List

## NetBIOS/NetBEUI Packet Filtering

The NE allows the operator to configure to forward or drop the name server protocol (NetBIOS and NetBEUI) traffics received on the subscriber interfaces.

Follow the subsequent procedures to configure the related parameters.

Click Configuration → xDSL → Packet Filter on **Main Menu** to open the **Packet Filtering** Dialog as shown in Figure 7-74 and Table 7-52 depicts the related parameters.

**Figure 7-74 Packet Filtering Dialog**

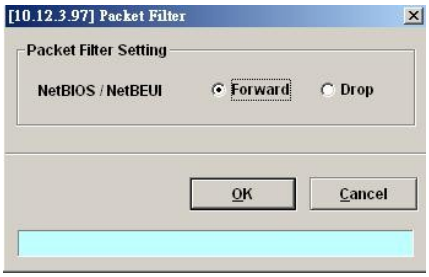



**Table 7-52 Packet Filtering Dialog Description**

| Field | Description |
|---|---|
| **Packet Filtering Setting** | |
| NetBIOS/NetBEUI | Set the packet filtering function to “forward” or “drop” for NetBIOS and NetBEUI packets. |

## Source MAC Access Control List

**Step 1** Click Configuration → xDSL → VC-to-VLAN on **Main Menu** to open the **xDSL VC-to-VLAN List** Dialog as shown in Figure 7-64.

**Step 2** Select a port in **VC to VLAN List dialog** and click “ACL” button on the right hand side of Figure 7-64 to configure the Access Control List option of the selected port. Figure 7-75 illustrated the **VC-to-VLAN Access Control List dialog**, and Table 7-53 depicts the related parameters. Figure 7-76 illustrated the window for adding new MAC

into the access control list.

**Figure 7-75 VC-to-VLAN Access Control List dialog**

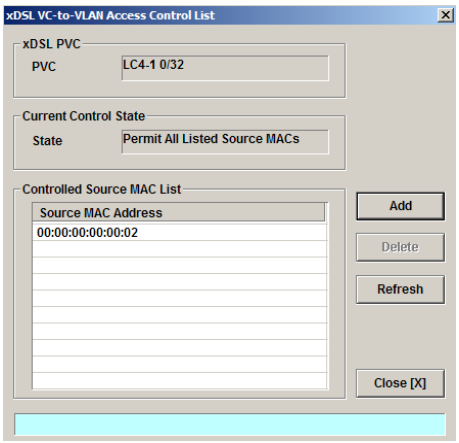



**Table 7-53 VC-to-VLAN Access Control List Dialog Description**

| Field | Description |
|---|---|
| **xDSL PVC** | |
| PVC | This indicates the specified xDSL port and specified PVC. |
| **Current Control State** | |
| State | This indicates the current access control state of the specified PVC. |
| **Controlled Source MAC List** | |
| Source MAC Address | This indicates the MAC address under controlling. |
| **Function Button** | |
| Add | Click this button to add or modify the role of access control. |
| Delete | Click this button to delete the specified access control entry. |
| Refresh | Click this button to refresh the access control state. |
| Close | Exit the Access Control List Dialog. |

**Step 3** Click ‘Add’ button to launch the **xDSL Access Control Dialog. Figure 7-76** shows the **xDSL Access Control Dialog,** and Table 7-54 depicts the related parameters.

**Figure 7-76 Add xDSL Access Control Dialog**

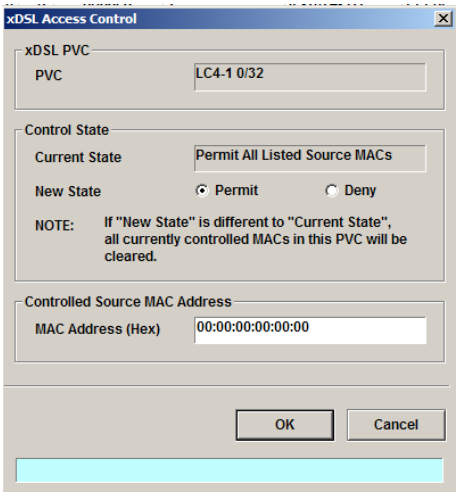


**Table 7-54 Add xDSL Access Control Dialog Description**

| Field | Description |
|---|---|
| **Control State (Add)** | |
| Current State | This indicates the current access control state of the specified PVC. |
| New State | Check the radio button to select the role of new state. |
| **Controlled Source MAC Address (Add)** | |
| MAC Address (Hex) | This specifies the MAC address under controlling. |

NOTE The roles of access control function, Deny and Permit, are repulsive, i.e. a “deny” role will be replaced while a new role “permit” is be configured.

Users can review the access control list from the menu combo-box. Follow the subsequent procedures to review the access control list configuration.

Click Configuration → xDSL → Access Control List on **Main Menu** to open the **xDSL Access Control List** Dialog as shown in Figure 7-77 and Table 7-55 depicts the related parameters.

**Figure 7-77 xDSL Access Control List**

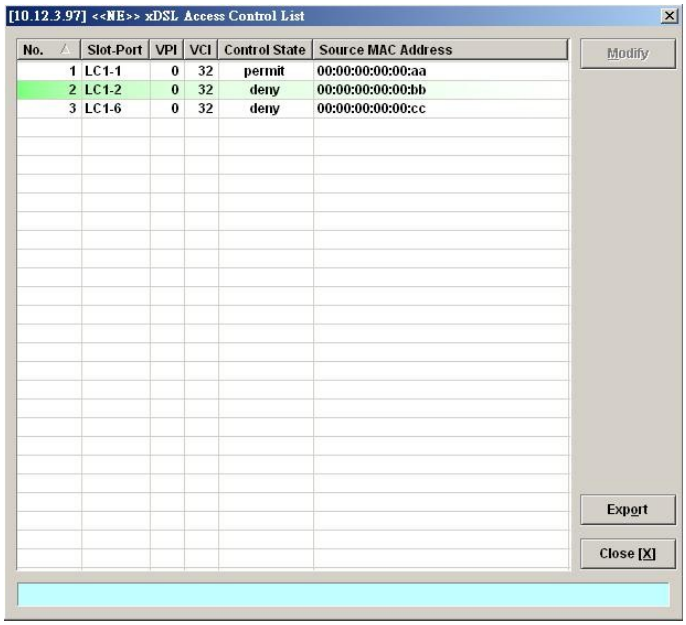


**Table 7-55 xDSL Access Control List Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the access control list. |
| Slot-Port | This indicates the location of xDSL port. |
| VPI | This indicates the VPI of the specified xDSL subscriber. |
| VCI | This indicates the VCI of the specified xDSL subscriber. |
| Control State | This indicates the control state of access control of the specified xDSL subscriber. |
| Source MAC Address | This indicates the source MAC address which is under controlling of the specified xDSL subscriber. |
| **Function Button** | |
| Modify | Click this button to open the VC-to-VLAN Access Control List. |
| Export | Click this button to save the contents of **xDSL Access Control List** to the Personal Computer. |
| Close | Exit the **xDSL Access Control List** Dialog. |

# Multicast Service Management

To provide multicast service, the operator needs to properly configure the multicast channel and IGMP snooping /IGMP proxy. This section contains the following two subsections.

- Multicast Channel Configuration
- IGMP snooping/IGMP proxy Configuration

## Multicast Channel Configuration

To forward the multicast stream, you are required to establish a VC-to-VLAN tunnel and specify the associated multicast service profile.

Follow the subsequent procedures to configure the related parameters.

**Step 1** Click Configuration → xDSL → Multicast Service on **Main Menu** to open the **xDSL Multicast Channel** Dialog.

**Step 2** Click on the 'Modify' or 'Add' button on the right hand side of Figure 7-78 to open the window (Figure 7-79) for adding new multicast channel and configure the associated setting.

In Figure 7-79, it is noted that two individual tabs (Multicast Service Profile and MAC Limit) are provided to set the Multicast Channel related parameters. Click either one **tab** to launch the corresponding dialog to configure the parameters. Table 7-56 depicts the related parameters

**Figure 7-78 xDSL Multicast Channel List Dialog**

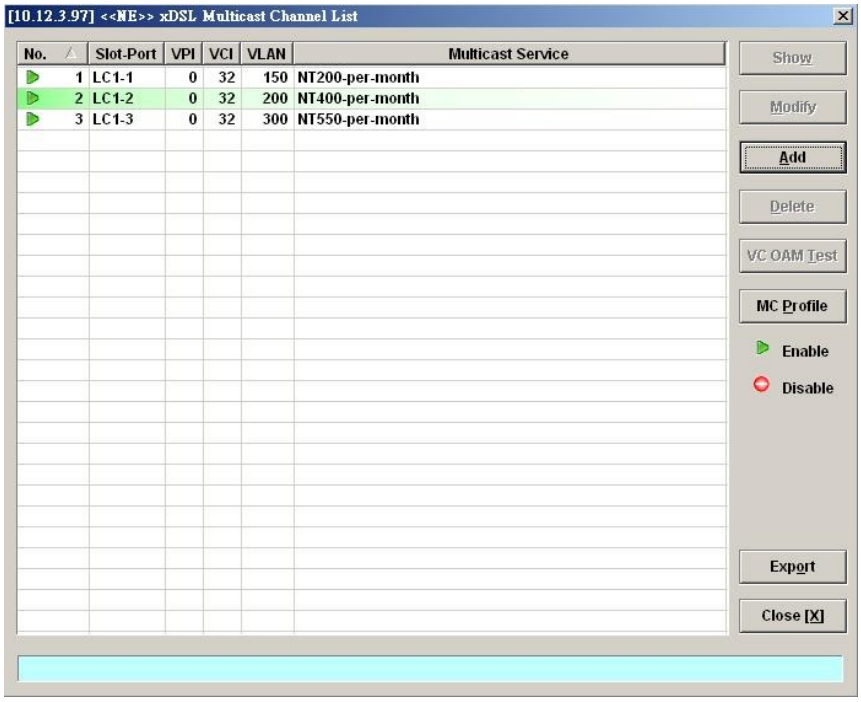



**Figure 7-79 xDSL Multicast Channel Setting Dialog**

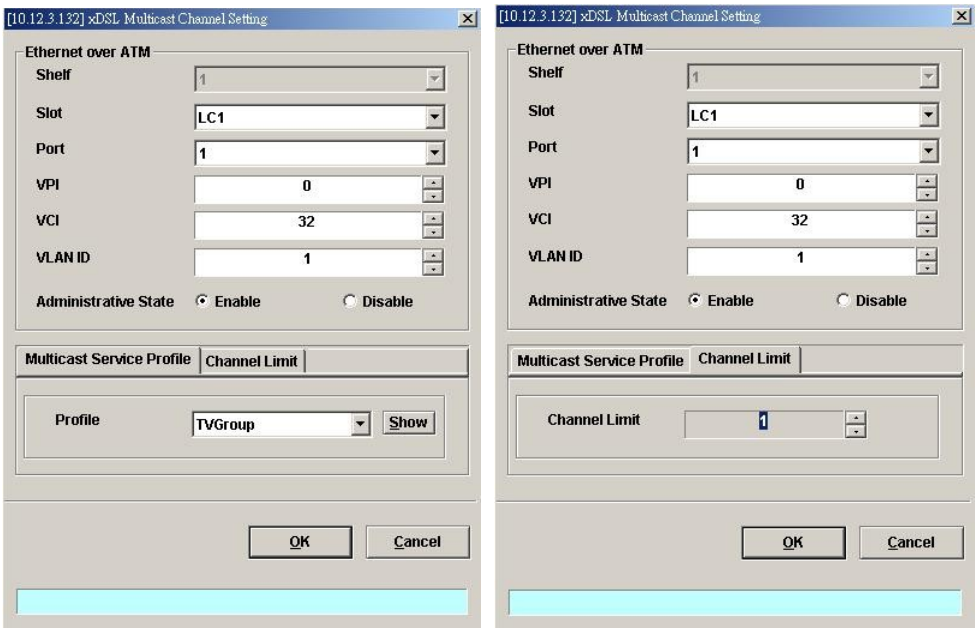


**Table 7-56 xDSL Multicast Channel Setting Description**

| Field | Description |
|---|---|
| **Ethernet over ATM** | |
| Shelf, Slot, Port | This specifies the physical connection information. |
| VPI | This specifies the VPI values. |
| VCI | This specifies the VCI values. |
| VLAN ID | This specifies the multicast VLAN ID. |
| Administrative State | Enable: Apply the specified multicast setting to the indicated PVC<br>Disable: Do not apply specified multicast setting to the indicated PVC |
| **Multicast Service Profile Dialog** | |
| Profile | This specifies the multicast service profile. Please refer to the section “Multicast Service Profile” in 5. |
| **Channel Limit Dialog** | |
| Channel Limit | This specifies the allowed number of multicast streams to be forwarded via the VC-to-VLAN connection. |

## IGMP snooping/IGMP proxy Configuration

Follow the subsequent procedures to configure the IGMP snooping and IGMP proxy related parameters.

Click Configuration → xDSL → IGMP Snooping / Proxy on **Main Menu** to open the **IGMP Snooping / IGMP Proxy Setting** Dialog as shown in Figure 7-80 and Table 7-57 depicts the related parameters.

**Figure 7-80 IGMP Snooping / IGMP Proxy Setting Dialog**

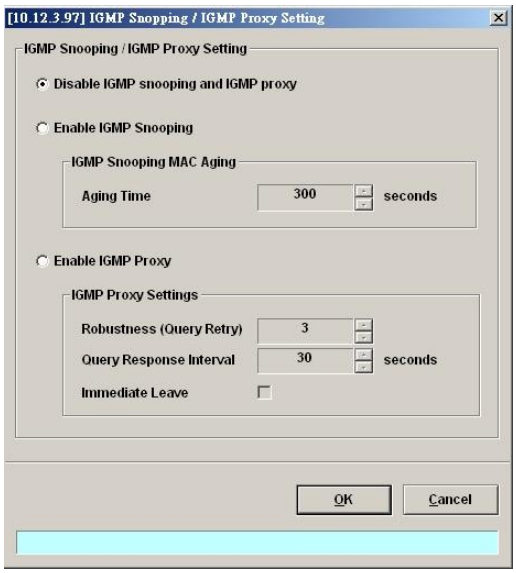


**Table 7-57 IGMP Proxy Setting Dialog Description**

| Field | Description |
|---|---|
| **IGMP Snooping / IGMP Proxy Setting** | |
| Disable IGMP snooping and IGMP proxy | This disables the IGMP Snooping and Proxy functionality. (Default) |
| Enable IGMP Snooping | This enables the IGMP Snooping functionality. |
| Enable IGMP Proxy | This enables the IGMP Proxy functionality. |
| **IGMP Snooping MAC Aging** | |
| Aging Time | This specifies the aging time of snooped legal multicast group MAC address. |
| **IGMP Proxy Setting** | |
| Robustness (Query Retry) | This specifies the IGMP Robustness retry times. Available value is 1 ~ 5 (times). |
| Query Response Interval | This specifies the period between the NE send 2 consecutive IGM queries to the xDSL subscriber. Available value is 1 ~ 30 (seconds). |
| Immediate Leave | This specifies the immediate leave. |

# System Services Configuration

The system services configuration covers the following settings.

- MAC Aging for Bridged Services
- VLAN MAC Limit
- 
- PPPoE Sub-option Configuration
- xDSL Port Agent ID

## MAC Aging for Bridged Services

The MAC aging time sets the lifetime for the learned MAC address. A specific MAC address will be dropped when aging out until it get learning again. Disable this function will keep the learned MAC addresses permanent in the learning table.

Click Configuration →NE Mangement→ MAC Aging on **Main Menu** to open the **MAC Aging** Dialog as shown in Figure 7-81 and Table 7-58 depicts the related parameters.

**Figure 7-81 MAC Aging Setting Dialog**

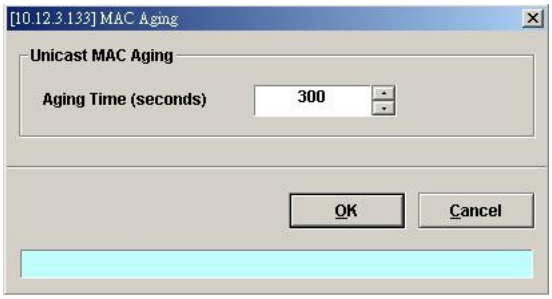


**Table 7-58 MAC Aging Setting Dialog Description**

| Field | Description |
|---|---|
| **Unicast MAC Aging** | |
| Aging Time (seconds) | This specifies the MAC aging time.<br>Default value is 300 seconds.<br>The valid range: 10 ~ 1000. |

## VLAN MAC Limit

To limit the number of source MAC address learned in a specific VLAN, the users can enable the MAC limiting function and configure the upper limit of allowed MAC for a specific VLAN.

**Step 1** Click Configuration → xDSL → VLAN MAC Limit on **Main Menu** to open the **VLAN MAC Limit** Dialog as shown in Figure 7-82 and Table 7-59 depicts the related parameters.

**Figure 7-82 VLAN MAC Limit List Dialog**

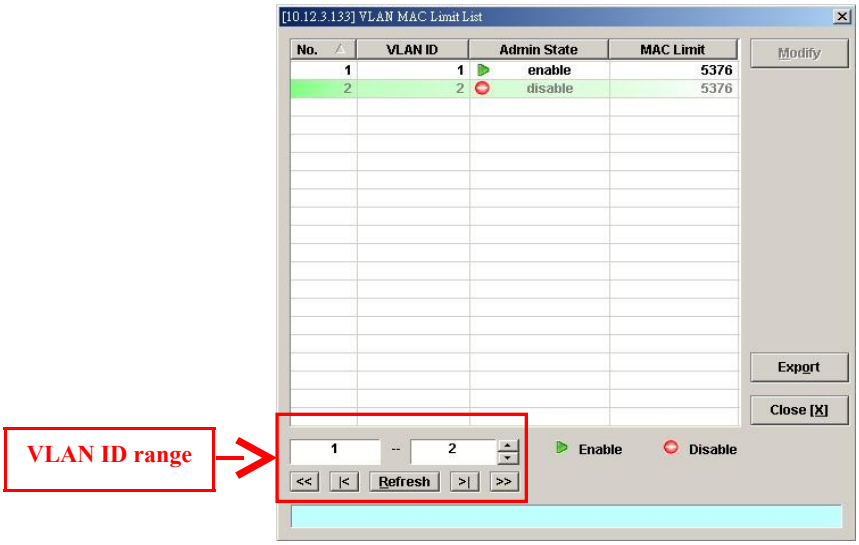


**Table 7-59 VLAN MAC Limit List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| VLAN ID | It specifies the VLAN. |
| Admin State | It specifies the administrative state. |
| MAC Limit | It specifies the number of MACs allowed for the corresponding VC-to-VLAN connection. |
| **VLAN ID Range** | |
| Range | Specify the range of VLAN ID as indicated by the red rectangle. |
| **Function Button** | |
| Modify | Click this button to open the MAC limit configure dialog. |
| Export | Click this button to save the contents of **VLAN MAC Limit List** to the Personal Computer. |
| Close | Exit the **VLAN MAC Limit List** Dialog. |
| Refresh | Click this button to display the List Table with configured VLAN ID range. |

**Step 2** Click 'Modify' button to launch the **VLAN MAC Limit Configure Dialog. Figure 7-83** shows **VLAN MAC Limit Configure Dialog,** and Table 7-60 depicts the related parameters.

**Figure 7-83 VLAN MAC Limit Configure Dialog**

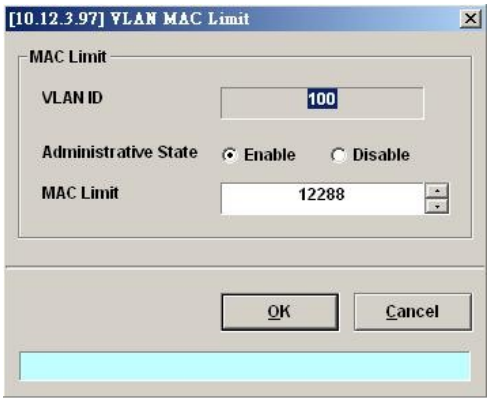



**Table 7-60 VLAN MAC Limit Setting Dialog Description**

| Field | Description |
|---|---|
| **MAC Limit ( Modify)** | |
| VLAN ID | It specifies the VLAN. |
| Administrative State | Enable or disable the MAC limit function.<br>Default state is "disable". |
| MAC Limit | This specifies the number of MAC allowed for the VLAN, from 5 ~ 50000.<br>Default value is 12288. |

## DHCP Service Configuration

Four dialogs are related to the DHCP Service Configuration.

- DHCP Setting
- DHCP Server List for DHCP Relay
- DHCP Broadcast Control

### DHCP Setting

The DHCP relay intercepts the DHCP request packets from subscriber interface and forwards them to the specified DHCP server. In the opposite direction, the DHCP relay transfers the DHCP reply packets from DHCP server to the specified xDSL subscriber.


The setting of DHCP option 82 contents is performed by configuring the xDSL Port Agent ID

Follow the subsequent procedures to configure the related parameters.

Click Configuration → xDSL → DHCP → DHCP Setting on **Main Menu** to open the **DHCP Setting** Dialog as shown in Figure 7-84 and Table 7-61 depicts the related parameters.

**Figure 7-84 DHCP Setting Dialog**


**Table 7-61 DHCP Setting Dialog Description**

| Field | Description |
|---|---|
| DHCP Relay | Enable or disable the DHCP Relay function. |
| DHCP Option82 | Enable or disable the DHCP option 82 function.<br>Enable: The relayed DHCP packet is to be appended with the configured DHCP option 82 information as specified in the xDSL Port Agent ID List |

### DHCP Server List for DHCP Relay

Click Configuration → xDSL → DHCP → DHCP Server for DHCP Relay on **Main Menu** to open the **DHCP Server List for DHCP Relay** Dialog as shown in Figure 7-85 and Table 7-62 depicts the related parameters.

**Figure 7-85 DHCP Server List for DHCP Relay Dialog**

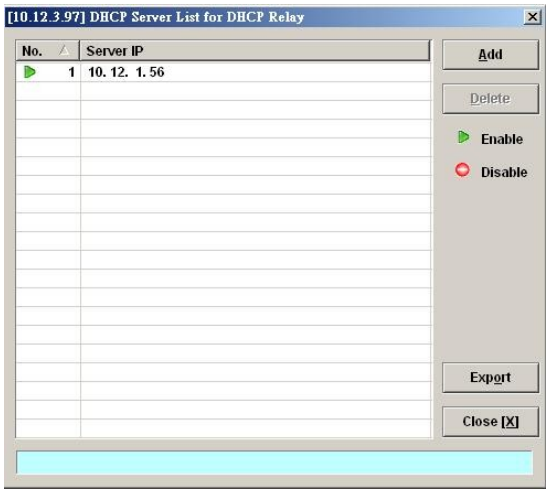



**Table 7-62 DHCP Server List for DHCP Relay Dialog Description**

| Field | Description |
|---|---|
| **Table List** | |
| No. | This indicates the serial number of entry of the List. |
| Server IP | This specifies the DHCP server IP address. |
| **Function Button** | |
| Add | Click this button to add a new DHCP server IP address. |
| Delete | Click this button to delete a specified DHCP server. |
| Export | Click this button to save the contents of **DHCP Server List** to the Personal Computer. |
| Close | Exit the **DHCP Server List for DHCP Relay** table dialog. |

### DHCP Broadcast Control

Users can set the DHCP broadcast packet rate limit and set the action applied to the out-of-profile traffic.

Click Configuration → xDSL → DHCP → DHCP Broadcast Control on **Main Menu** to open the **DHCP Broadcast Control s** Dialog as shown in Figure 7-86. Table 7-63 depicts the related parameters.

**Figure 7-86 DHCP Broadcast Control Dialog**

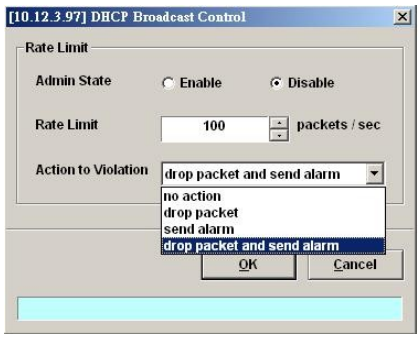


**Table 7-63 DHCP Broadcast Control Dialog - Description**

| Field | Description |
|---|---|
| **Rate Limit** | |
| Admin State | Enable or disable the DHCP broadcast control.<br>The default setting is “disable”. |
| Rate Limit | This specifies the rate limit based on packets per second. Available value is 1 ~ 100000 (packet per second).<br>Default value is 100 packets per second. |
| Action to Violation | This specifies the action to be taken for the packets over the limit.<br>“No action”, “Drop packet”, “Send alarm” and “Drop packet and send alarm”. |

NOTE When the action is set to be either “Send alarm” and “Drop packet and send alarm”, the NE will launch SNMP traps to the SNMP trap managers as specified in the section “Configuring the SNMP Trap Manager” in Chap 4.

## PPPoE Sub-option Configuration

PPPoE sub-option has similar mechanism as DHCP option 82. The NE can insert Circuit ID and Remote ID in all upstream PPPoE discovery stage packets, i.e. the PADI, PADR and upstream PADT packets. Figure 7-87 illustrates the enable/disable window for this functionality.

NOTE The setting of PPPoE sub-option contents is performed by configuring the xDSL Port Agent ID

Follow the subsequent procedures to configure the related parameters.

Click Configuration → xDSL → PPPoE on **Main Menu** to open the **PPPoE setting** Dialog as shown in Figure 7-87 and Table 7-64 depicts the related parameters.

**Figure 7-87 PPPoE Sub-option Setting Dialog**


**Table 7-64 PPPoE Sub-option Setting Dialog Description**

| Field | Description |
|---|---|
| **Administrative State** | |
| PPPoE Sub-option 1 & 2 | Enable or disable the PPPoE sub-option function.<br>Enable: The relayed PPPoE packet is to be appended with the configured PPPoE Sub-option 1 &2 information as specified in the xDSL Port Agent ID List<br>Default value is “Disable”. |

## xDSL Port Agent ID Management

The xDSL Port Agent ID List keeps the Agent Circuit ID (intended for circuits terminated by the system hosting the Relay agent) and Agent Remote ID (intended to identify the remote host end of a circuit). The NE allows the operator to specify Agent Remote ID with an ASCII string of up to 63 characters. As to the Agent Circuit ID, it is not permitted to be modified. The format of Agent Circuit ID is as follows.

"NE-InbandIP-userSrcMAC atm slot-port:VPI.VCI"

Here is one example Agent Circuit ID

"IP_DSLAM-100.168.3.97-00:11:d8:80:93:23 atm 3-1:100.33",

which represents

NE's inband IP=100.168.3.97,

MAC address of subscriber's personal computer (or the CPE)= 00:11:d8:80:93:23,

slot = 3, port = 1, vpi = 100, vci = 33.

xDSL Port Agent ID is to be inserted into either all upstream DHCP messages sent by the client and all upstream PPPoE discovery stage packets

Follow the subsequent procedures to configure the xDSL Port Agent ID.

**Step 1** Click Configuration → xDSL → Port Agent ID on **Main Menu** to open the **xDSL Port Agent IDs** Dialog as shown in Figure 7-88 and Table 7-65 depicts the related parameters. To modify the

**Step 2** Click and highlight a row and click '**Modify**' button to modify the Agent Remote ID.

**Figure 7-88 xDSL Port Agent ID List**

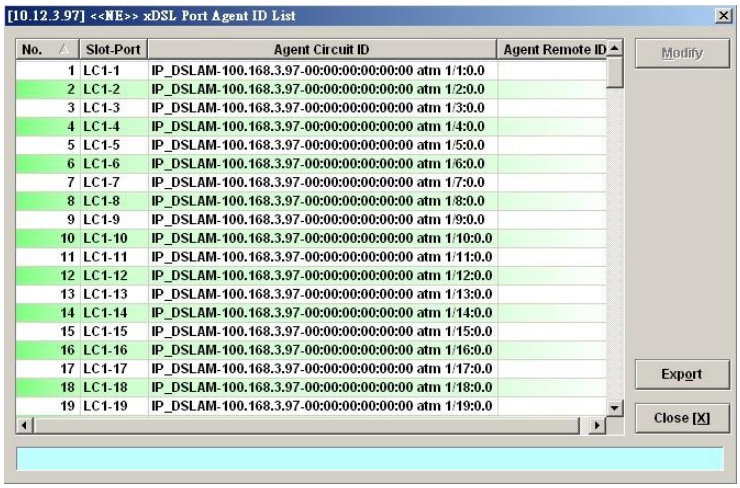


**Table 7-65 xDSL Port Agent IDs Dialog Description**

| Field | Description |
|---|---|
| **Table List** | |
| No, | This indicates the number of Table List. |
| Slot-Port | This indicates the slot-port address. |
| Agent Circuit ID | This indicates the agent circuit ID of the specified xDSL subscriber.<br>Its format is as follows.<br>"NE-InbandIP-userSrcMAC atm slot-port:VPI.VCI" |
| Agent Remote ID | This indicates the agent remote ID of the specified xDSL subscriber.<br>It is an ASCII string of up to 63 characters. |
| **Function Button** | |
| Modify | Click this button to modify the selected xDSL port's agent ID. |
| Export | Click this button to save the contents of **xDSL Port Agent ID List** to the Personal Computer. |
| Close | Exit the **xDSL Port Agent ID List** Dialog. |

# Chapter 8Fast Provision Management

This chapter describes the Fast Provision function. Through this function, you are able to efficiently apply the profiles to a mass of xDSL subscriber ports.

This chapter contains the following sections:

- Interface and VC-VLAN Fast Provisioning
- Multicast Service Fast Provisioning

## Interface and VC-VLAN Fast Provisioning

The AMS LCT provides a fast provision function that helps you to build-up the principal connection setting of interface ports in fast and efficient way. Through this function, you can apply the profile and VC-to-VLAN setting to a mass of xDSL subscriber interfaces simultaneously, instead of configuring the individual subscriber interfaces one by one.

Follow the subsequent procedure to configure the interface fast provision.

**Step 1** Click Configuration → xDSL → Fast Provision → Port & VC-to-VLAN on **Main Menu** to open the **xDSL Port & VC-to-VLAN Fast Provision** Dialog as shown in Figure 8-89.

Note that the configuration tabs are not exact the same for the RFC2684 bridged mode and routed mode. Figure 8-89 ~ Figure 8-95 show the corresponding configuration dialogs. Click either one tab to launch the corresponding dialog to configure the parameters. As to the description of the configuration parameters, please refer to Table 8-66.

It is noted that the configuration dialog may be different between the RFC2684 bridged mode and routed mode. If the configuration dialogs are the same for both the bridged mode and routed mode, Figure 8-89 ~ Figure 8-95only show the ones in the bridged mode without any additional description. Otherwise, Figure 8-89 ~ Figure 8-95show the configuration dialogs with description to indicate it. The rule of description also applies to Table 8-66.

**Figure 8-89 xDSL Port & VC-to-VLAN Fast Provision – Port Setting Dialog**

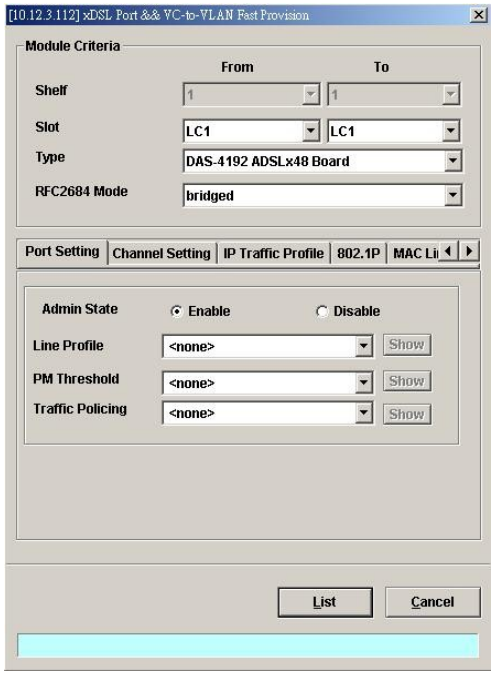
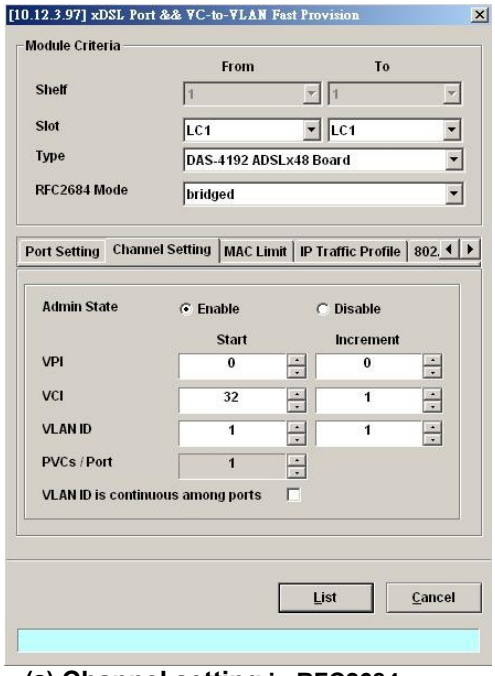
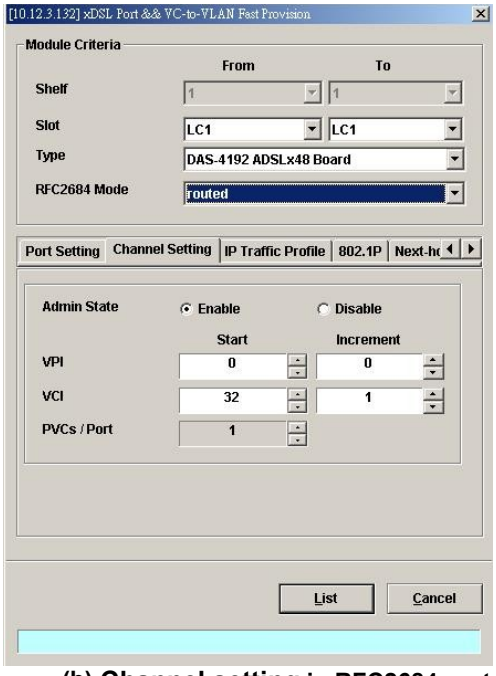



**Figure 8-90 xDSL Port & VC-to-VLAN Fast Provision – Channel Setting Dialog**




(a) **Channel setting in RFC2684 bridged mode**




(b) **Channel setting in RFC2684 routed mode**

**Figure 8-91 xDSL Port & VC-to-VLAN Fast Provision – IP Traffic Dialog**

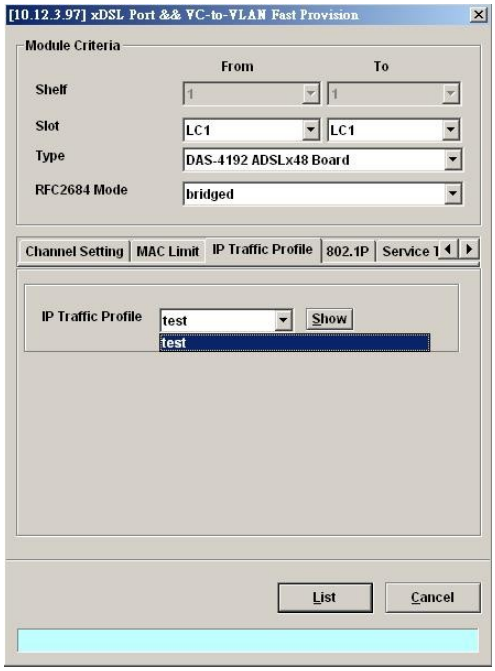



**Figure 8-92 xDSL Port & VC-to-VLAN Fast Provision – MAC Limit Dialog (only for the RFC2684 bridged mode)**

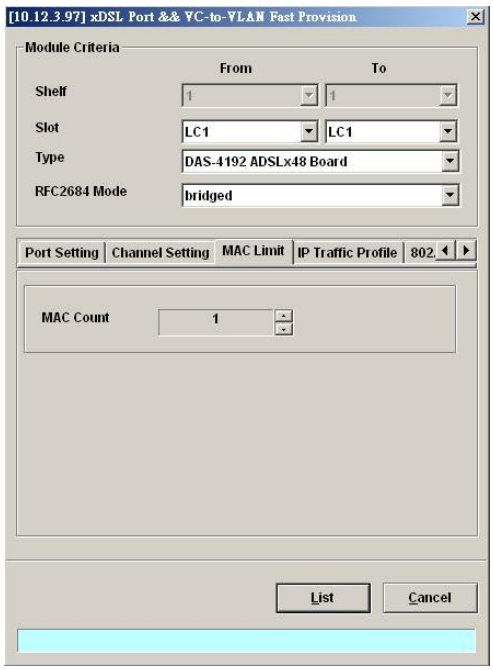


**Figure 8-93 xDSL Port & VC-to-VLAN Fast Provision – Next-hop Dialog (only for the RFC2684 routed mode)**

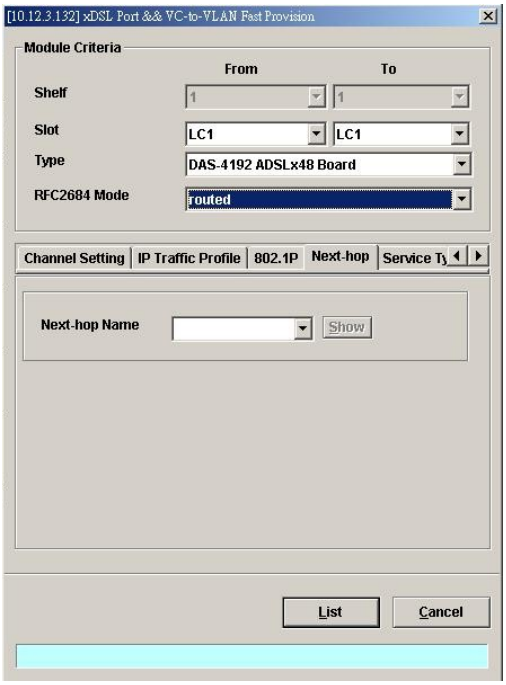



**Figure 8-94 xDSL Port & VC-to-VLAN Fast Provision – 802.1P Dialog**

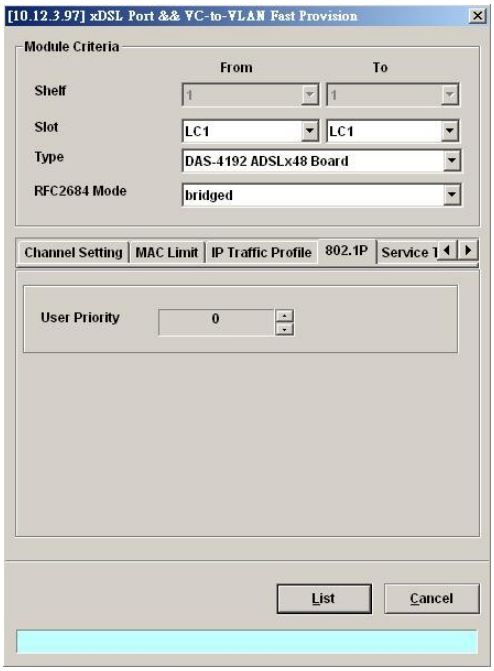
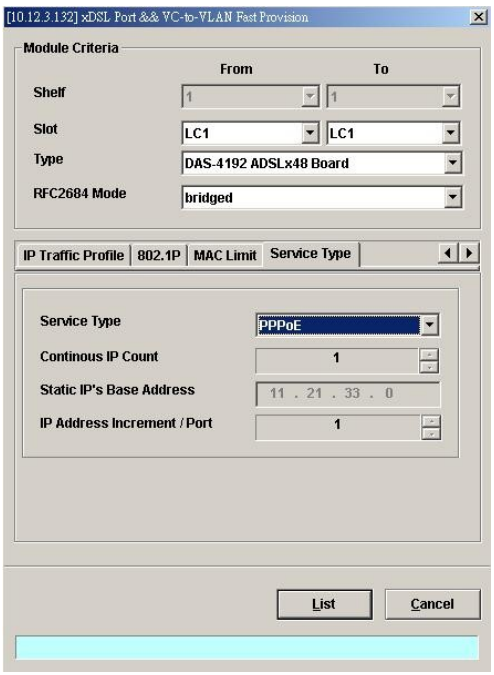
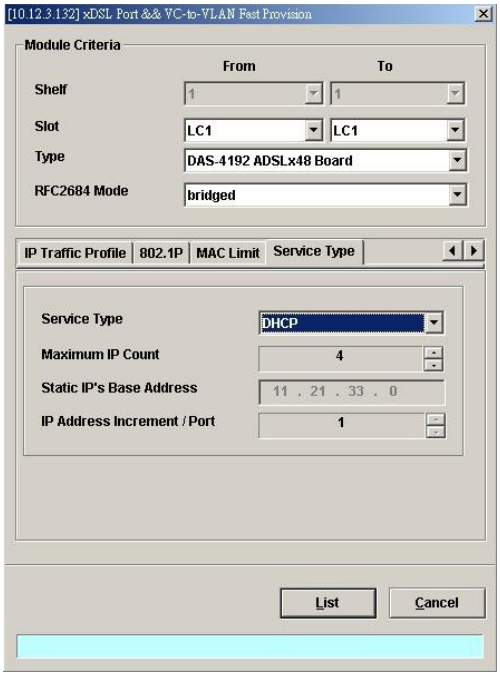


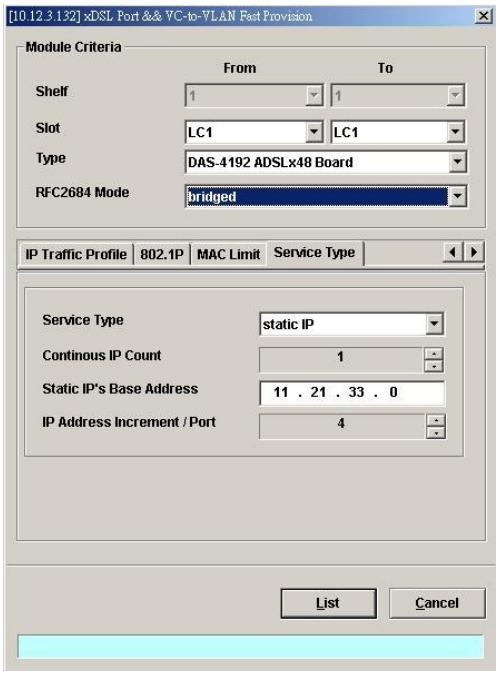
**Figure 8-95 xDSL Port & VC-to-VLAN Fast Provision – Service Type Dialog**



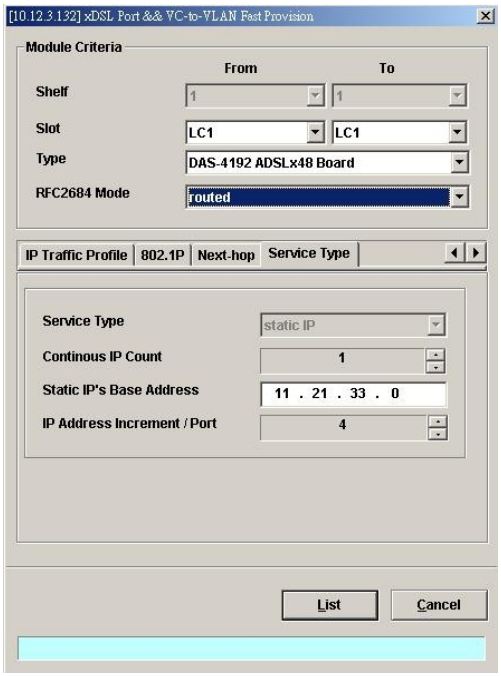

(a) PPPoE service in RFC2684 bridged mode




(b) DHCP service in RFC2684 bridged mode




(c) Static IP service in RFC2684 bridged mode




(d) Static IP service in RFC2684 routed mode

**Table 8-66 xDSL Port & VC-to-VLAN Fast Provision Description**

| Field | Description |
|---|---|
| **Module Criteria** | |
| Shelf | This specifies the location of shelf. It is obsolete in the current release. |
| Slot | It specifies the location of the line card. |
| Type | It specifies the board type of line card. |
| RFC2684 Mode | It specifies the RFC 2684 encapsulation mode (Bridged or Routed mode) |
| **Port Setting Dialog** | |
| Admin State | It specifies the administrative state. (enable or disable) |
| Line Profile | It specifies the line profile. (xDSL Profile) |
| PM Threshold | It specifies the PM threshold profile. |
| Traffic Policing | It specifies the Traffic Policing profile. [Only for the ADSL port] |
| **Channel Setting Dialog**<br>Start – Identify the number of starting value.<br>Increment – Identify the number to be increment if more then one **PVCs / Port** is defined. | |
| Admin State | It specifies the administrative state. (enable or disable) |
| VPI (Start, Increment) | It specifies the VPI value of PVCs. |
| VCI (Start, Increment) | It specifies the VCI value of PVCs. |
| VLAN ID (Start, Increment) | It specifies the VLAN ID value of corresponding VC-to-VLAN connections. |
| PVCs / Port | It specifies the number of PVCs to be applied to each xDSL port. |
| VLAN ID is continuous among port | Check to sequentially increase the VLAN ID values to be assigned to the PVCs. |
| **IP Traffic Profile Dialog** | |
| IP Traffic Profile | This specifies the IP Traffic Profile of corresponding VC-to-VLAN connection. |
| **802.1P Dialog** | |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| **Next-hop Dialog** [only for RFC2684 routed mode] | |
| Next-hop Name | It specifies the next-hop name as specified in the section ‘ISP Information for IP over ATM’ of Chapter 7. |
| **MAC Limit Dialog** [only for RFC2684 bridged mode] | |
| MAC Count | It specifies the number of subscriber’s MACs allowed for the corresponding VC-to-VLAN connection. |

**Table 8-1 xDSL Port & VC-to-VLAN Fast Provision Description (Continued)**

| Field | Description |
|---|---|
| **Service Type Dialog** | |
| Service Type | This specifies the service type to be allowed on the PVC of individual subscriber. The following three service types are supported now.<br>● PPPoE<br>● DHCP<br>● Static IP |
| Maximum IP Count<br>[only for DHCP Service] | This indicates the number of IP to be allowed while DHCP is selected |
| Continuous IP Count<br>[only for Static IP Service] | This indicates the number of IP to be allowed while Static IP is selected |
| Static IP's Basic Address<br>[only for Static IP Service] | This specifies the base of the IP address if the service type is Static IP |
| IP Address Increment/Port<br>[only for Static IP Service] | This indicates the increment of IP address between two consecutive ports while Static IP is selected and Continuous IP Count is greater than 1. |

Whenever the service type is specified as "Static IP Service", it is noted that the following relationship should be maintained.

IP Address Increment/Port ≥ Continuous IP Count

Enabling the Service Type Control makes the NE to provide the IP/MAC anti spoofing function.

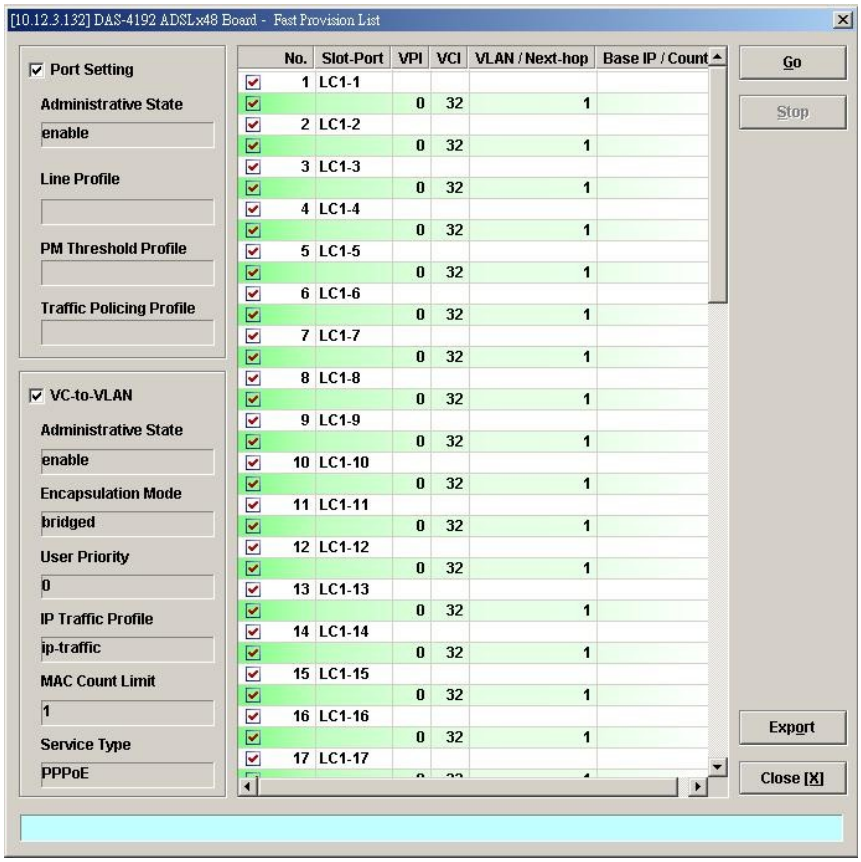
In the case that the subscriber acquires his IP address dynamically via PPPoE or DHCP, the NE will block the subscriber's traffic before a valid IP address assignment. Once the subscriber possesses a valid dynamic or static IP, the NE will just forward the packet of valid source IP/MAC addresses. In other words, the NE drops the subscriber's traffic of invalid source IP/MAC addresses.

**Step 2** Click '**List**' button to launch the **xDSL Fast Provision List** dialog. Figure 8-96 summarizes what you set via the **xDSL Port & VC-to-VLAN Fast Provision** dialog. As shown in Figure 8-96, it depicts the list of subscriber ports you wish to apply to. If you do no want to apply the setting to any port or PVC, just remove it from the List Table by clearing the corresponding check-box.

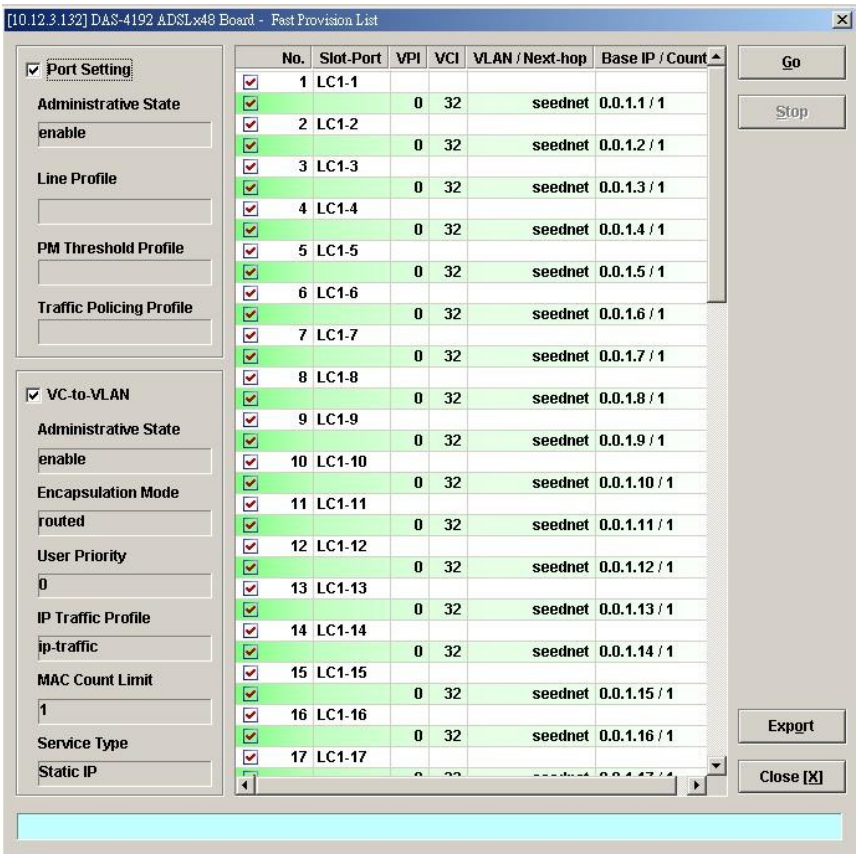
Table 8-67 depicts the related parameters.

**Step 3** Click '**Go**' button to apply the given setting to all ports in the List Table. The checks are removed when the setting is successfully applied. Click '**Stop**' to stop the fast provisioning immediately if you want.

**Figure 8-96 xDSL Fast Provision List Dialog**




**(a) List Dialog in the RFC2684 bridged mode**




**(b) List Dialog in the RFC2684 routed mode**

**Table 8-67 xDSL Fast Provision List Dialog Description**

| Field | Description |
|---|---|
| **Condition** | |
| Port Setting – Check to allow the correspondent setting to be applied to the ports in List Table. | |
| VC-to-VLAN – Check to allow the correspondent setting to be applied to the ports in List Table. | |
| Administrative State | This specifies the administrative state. (enable or disable) |
| Line Profile | This specifies the line profile. (xDSL Profile) |
| PM Threshold Profile | This specifies the PM threshold profile. |
| Traffic Policing Profile | This specifies the Traffic Policing profile. [Only for the ADSL port] |
| Encapsulation Mode | This specifies the RFC2684 encapsulation mode of corresponding PVC. |
| User Priority | This specifies the VLAN priority of corresponding VC-to-VLAN connection. |
| IP Traffic Profile | This specifies the IP traffic profile of corresponding VC-to-VLAN connection. |
| MAC Count Limit | It specifies the number of subscriber's MACs allowed for the corresponding VC-to-VLAN connection. [only for RFC2684 bridged mode] |
| Service Type | This specifies the service type of corresponding VC-to-VLAN connection. The following three service types are supported now.<br>● PPPoE<br>● DHCP<br>● Static IP |
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This specifies the location of subscriber port. |
| VPI | This specifies the VPI value of PVC. |
| VCI | This specifies the VCI value of PVC. |
| VLAN / Next-hop | This specifies the VLAN ID (in RFC2684 bridged mode) or Next-hop name (in RFC2684 routed mode) of corresponding VC-to-VLAN connection. |
| Base IP / Count | This specifies the IP Base address and count of IP address of corresponding VC-to-VLAN connection. It applies whenever the Service Type Control is enabled and Static IP or DHCP is selected |
| **Function Button** | |
| Go | Click this button to start fast provisioning. |
| Stop | Click this button to force the fast provision terminating. |
| Export | Click this button to save the contents of **xDSL Fast Provision List** to the Personal Computer. |
| Close | Exit this **xDSL Fast Provision List** Dialog. |

# Multicast Service Fast Provisioning

The multicast service fast provision function helps you to build-up the multicast connection and the associated service profile efficiently.

Follow the subsequent procedures to configure the multicast service fast provision.

**Step 1** Click Configuration → xDSL → Fast Provision → Multicast Channel on **Main Menu** to open the **xDSL Multicast Channel Fast Provision** Dialog, as shown in Figure 8-97

and Table 8-68 depicts the related parameters.

In Figure 8-97, it is noted that two individual tabs (Multicast Service Profile and Channel Limit) are provides to set the Multicast Service Fast Provision related parameters. Figure 8-97 ~ Figure 8-98 show the corresponding configuration Dialog. Click either one tab to launch the corresponding dialog to configure the parameters. As to the description of the configuration parameters, please refer to Table 8-68.

**Figure 8-97 xDSL Multicast Channel Fast Provision – Multicast Service Profile Dialog**

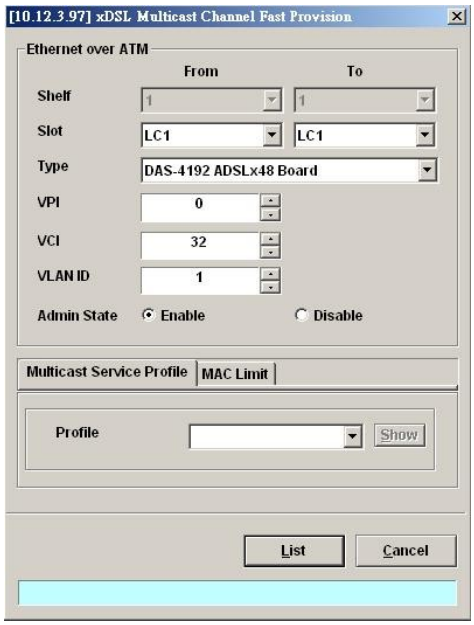



**Figure 8-98 xDSL Multicast Channel Fast Provision – Channel Limit Dialog**

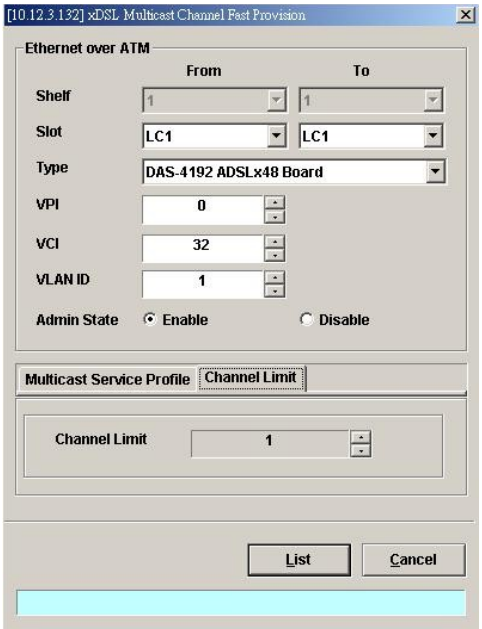


**Table 8-68 xDSL Multicast Channel Fast Provision Description**

| Field | Description |
|---|---|
| **Ethernet over ATM** | |
| Shelf | This specifies the shelf ID. |
| Slot | It specifies the slot range. |
| Type | It specifies the LC board type. |
| VPI | It specifies the VPI value. |
| VCI | It specifies the VCI value. |
| VLAN ID | It specifies the VLAN ID value. |
| Admin State | Enable: Apply the specified multicast setting to the indicated PVCs<br>Disable: Do not apply specified multicast setting to the indicated PVCs |
| **Multicast Service Profile Dialog**<br>Show – Click this button to display the details of multicast service profile collocated. | |
| Profile | It specifies the Multicast Service Profile |
| **Channel Limit Dialog** | |
| Channel Limit | This specifies the allowed number of concurrent multicast streams to be forwarded via each VC-to-VLAN connection. |

**Step 2** Click '**List**' button to launch the **xDSL Multicast Channel Fast Provision List** dialog. Figure 8-99 summarizes what you set via the **xDSL Multicast Channel Fast Provision** dialog. As shown in Figure 8-99, it depicts the list of subscriber ports you wish to apply to. If you do not want to apply the setting to any port in the list table, just clear the corresponding check-box

Table 8-69 depicts the related parameters.

**Step 3** Click '**Go**' button to apply the given setting to all ports listing in the List Table. The checks are removed when the setting is successfully applied. Click '**Stop**' to stop the fast provision immediately if you want.

**Figure 8-99 xDSL Multicast Channel Fast Provision List Dialog**

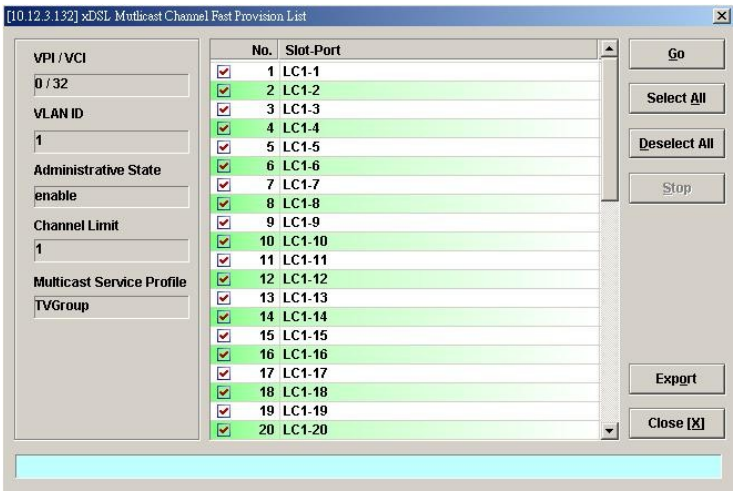


**Table 8-69 xDSL Multicast Channel Fast Provision List Dialog Description**

| Field | Description |
|---|---|
| **Condition** | |
| VPI / VCI | This specifies the VPI / VCI value of corresponding PVC. |
| VLAN ID | This specifies the VLAN ID value of corresponding VC-to-VLAN connection. |
| Administrative State | Enable: Apply the specified multicast setting to the indicated PVCs<br>Disable: Do not apply specified multicast setting to the indicated PVCs |
| Channel Limit | This specifies the allowed number of multicast streams to be forwarded via each VC-to-VLAN connection. |
| Multicast Service Profile | This specifies the multicast service profile. |
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This specifies the location of subscriber port. |
| **Function Button** | |
| Go | Click this button to start fast provisioning. |
| Select All | Click this button to select all rows from List Table. |
| Deselect All | Click this button to deselect all rows from List Table |
| Stop | Click this button to force the fast provision terminating. |
| Export | Click this button to save the contents of **xDSL Multicast Channel Fast Provision List** to the Personal Computer. |
| Close | Exit the **xDSL Multicast Channel Fast Provision List** Dialog. |

# Chapter 9Performance Management

This chapter describes system performance monitoring and related management.

This chapter contains the following sections:

- xDSL Line Current Performance Information
- xDSL Line Historical Performance Information
- GE Interface Performance Statistics

## xDSL Line Current Performance Information

Follow the subsequent procedure to obtain data for evaluating the current xDSL line performance.

**Step 1** Click Performance → xDSL Current PM on **Main Menu** to open the **xDSL Current PM Port Selection** Dialog as shown in Figure 9-100.

**Step 2** Select the port you want to show and press Query button to get the current PM data. Depending on the type of selected port, the current PM dialog looks different. Figure 9-101 shows the ADSL Current PM Dialog. The corresponding descriptions are depicted in Table 9-70. As to the SHDSL Current PM Dialog, it is shown in Figure 9-102. The corresponding descriptions are depicted in Table 9-71.

**Figure 9-100 xDSL Current PM Port Selection**

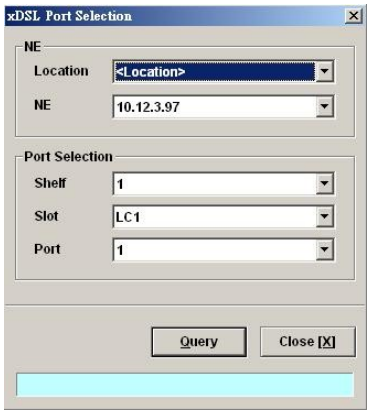



**Figure 9-101 ADSL Current PM Dialog**

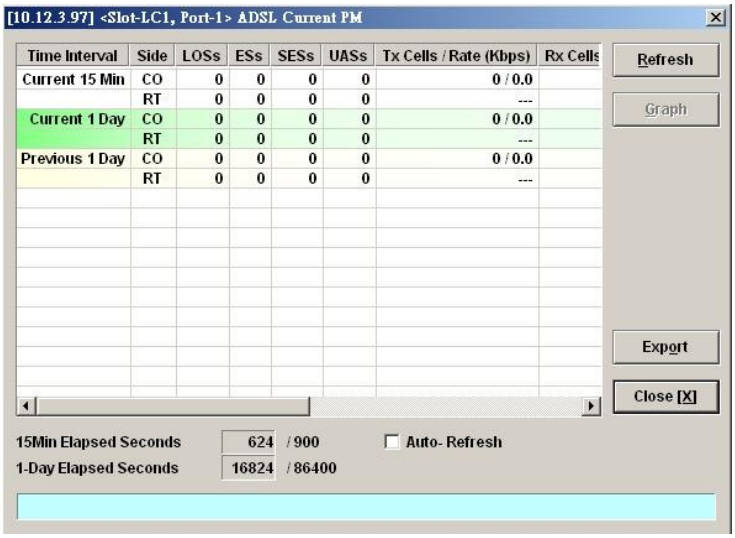


**Table 9-70 ADSL Current PM Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Time Interval | This indicates the PM time interval |
| Side | This indicates the location where the PM parameters are observed. (Either central side (CO) or remote side (RT)) |
| LOSs | This indicates the count of Loss of Signal Second during the current accumulated period. |
| ESs | This indicates the count of Error Second during the current accumulated period. |
| SESs | This indicates the count of Severely Error Second during the current accumulated period. |
| UASs | This indicates the count of Unavailable Error Second during the current accumulated period. |
| Tx Cells / Rate (Kbps) | This indicates the transmitted number of ATM cells and net data rate during the current accumulated period. |
| Rx Cell / Rate (Kbps) | This indicates the received number of ATM cells and net data rate during the current accumulated period. |
| CVs | This indicates the count of Code Violation during the current accumulated period. |
| FullInits | This indicates the count of the total number of full initializations attempted on the line (successful and failed) during the current accumulated period. |
| FailedInits | This indicates the total number of failed full initializations during the current accumulated period.<br>A failed full initialization is when showtime is not reached at the end of the full initialization procedure, e.g., when:<br>• A CRC error is detected.<br>• A time-out occurs.<br>• Unexpected message content is received. |
| TxBlks | This indicates the transmitted number of FEC block during the current accumulated period. |
| RxBlks | This indicates the received number of FEC block during the current accumulated period. |
| CrtBlks | This indicates the count of all blocks received with errors that were corrected during the current accumulated period. |
| UncrtBlks | This indicates the count of all blocks received with uncorrectable errors during the current accumulated period. |
| **Function Button** | |
| Refresh | Click this button to refresh the List Table |
| Graph | Click this button to draw the 2D/3D diagram |
| Export | Click this button to save the contents of **ADSL Current PM List** to the Personal Computer. |
| Close | Exit the **ADSL Current PM** Dialog. |

**Figure 9-102 SHDSL Current PM Dialog**

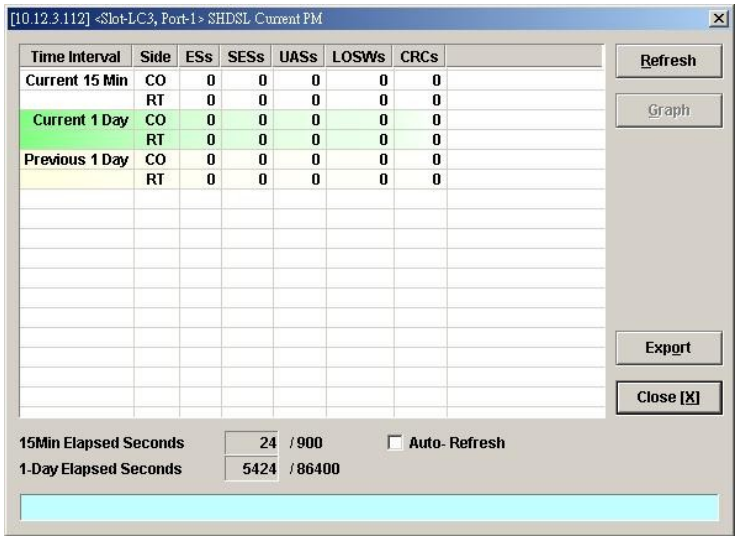



**Table 9-71 SHDSL Current PM Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Time Interval | This indicates the PM time interval |
| Side | This indicates the location where the PM parameters are observed. (Either central side (CO) or remote side (RT)) |
| ESs | This indicates the count of Error Second during the current accumulated period. |
| SESs | This indicates the count of Severely Error Second during the current accumulated period. |
| UASs | This indicates the count of Unavailable Error Second during the current accumulated period. |
| LOSWs | This indicates the count of LOSW second during the current accumulated period. |
| CRCs | This indicates the count of the SHDSL CRC anomalies occurring during the current accumulation period. |
| **Function Button** | |
| Refresh | Click this button to refresh the List Table |
| Graph | Click this button to draw the 2D/3D diagram |
| Export | Click this button to save the contents of **SHDSL Current PM List** to the Personal Computer. |
| Close | Exit the **SHDSL Current PM** Dialog. |

# xDSL Line Historical Performance Information

Follow the subsequent procedure to obtain data for evaluating the history xDSL line performance.

**Step 1** Click Performance → xDSL History PM on **Main Menu** to open the **xDSL History PM Port Selection** Dialog as shown in Figure 9-103.

**Step 2** Select the port you want to show and press Query button to get the historical PM data. Depending on the type of selected port, the historical PM dialog looks different. Figure 9-104 shows the ADSL History PM Dialog. The corresponding descriptions are depicted in Table 9-72. As to the SHDSL History PM Dialog, it is shown in Figure 9-105. The

corresponding descriptions are depicted in Table 9-73.

**Figure 9-103 xDSL History Port Selection Dialog**

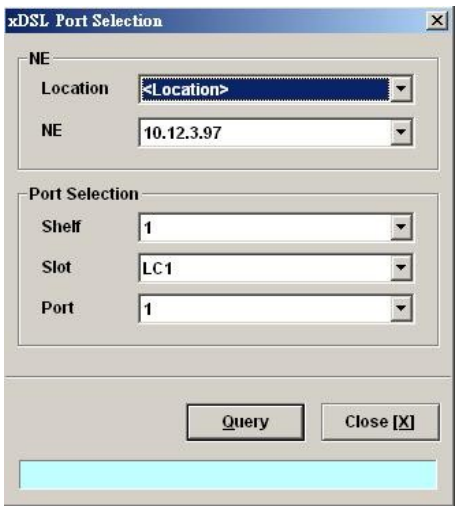



**Figure 9-104 ADSL History PM Dialog**

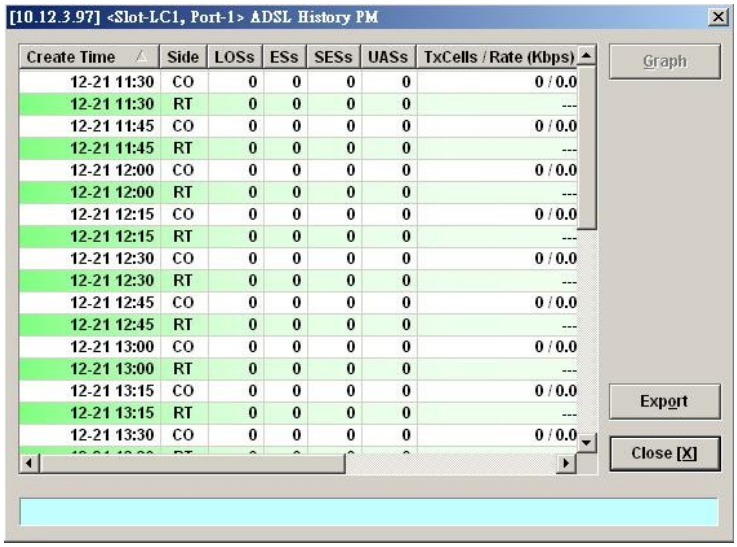


**Table 9-72 ADSL History PM Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Create Time | This indicates the time when the xDSL historical PM is recoreded. |
| Side | This indicates the location where the PM parameters are observed. (Either central side(CO) or remote side(RT)) |
| LOSs | This indicates the count of Loss of Signal Second during the indicated period. |
| ESs | This indicates the count of Error Second during the indicated period. |
| SESs | This indicates the count of Severely Error Second during the indicated period. |
| UASs | This indicates the count of Unavailable Error Second during the indicated period. |
| Tx Cells / Rate (Kbps) | This indicates the transmitted number of ATM cells and net data rate during the indicated period. |
| Rx Cell / Rate (Kbps) | This indicates the received number of ATM cells and net data rate during the indicated period. |
| CVs | This indicates the count of Code Violation during the indicated period. |
| FullInits | This indicates the count of the total number of full initializations attempted on the line (successful and failed) during the indicated period. |
| FailedInits | This indicates the total number of failed full initializations during the indicated period.<br>A failed full initialization is when showtime is not reached at the end of the full initialization procedure, e.g., when:<br>• A CRC error is detected.<br>• A time-out occurs.<br>• Unexpected message content is received. |
| **Function Button** | |
| Graph | Click this button to draw the 2D/3D diagram |
| Export | Click this button to save the contents of **ADSL History PM** to the Personal Computer. |
| Close | Exit the **ADSL History PM** Dialog. |

**Figure 9-105 SHDSL History PM Dialog**

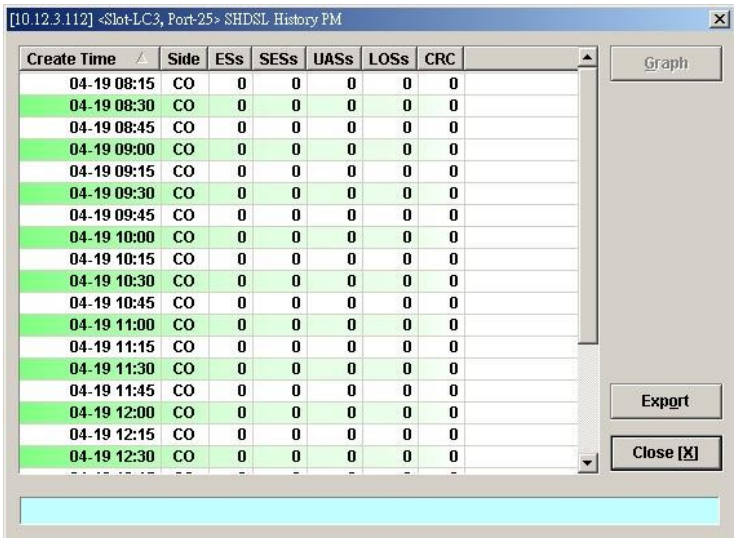



**Table 9-73 SHDSL History PM Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Create Time | This indicates the time when the PM is reported |
| Side | This indicates the location where the PM parameters are observed. (Either central side (CO) or remote side (RT)) |
| ESs | This indicates the count of Error Second during the indicated period. |
| SESs | This indicates the count of Severely Error Second during the indicated period. |
| UASs | This indicates the count of Unavailable Error Second during the indicated period. |
| LOSWs | This indicates the count of LOSW second during the indicated period. |
| CRCs | This indicates the count of the SHDSL CRC anomalies occurring during the current accumulation period. |
| **Function Button** | |
| Graph | Click this button to draw the 2D/3D diagram |
| Export | Click this button to save the contents of **SHDSL History PM List** to the Personal Computer. |
| Close | Exit the **SHDSL History PM** Dialog. |

# GE Interface Performance Statistics

Follow the subsequent procedure to obtain data for evaluating the GE interface performance.

Click Performance → Trunk Port PM on **Main Menu** to open the **Trunk Port PM** Dialog as shown in Figure 9-106. Table 9-74 depicts the related parameters.

**Figure 9-106 Trunk PM Statistics Dialog**

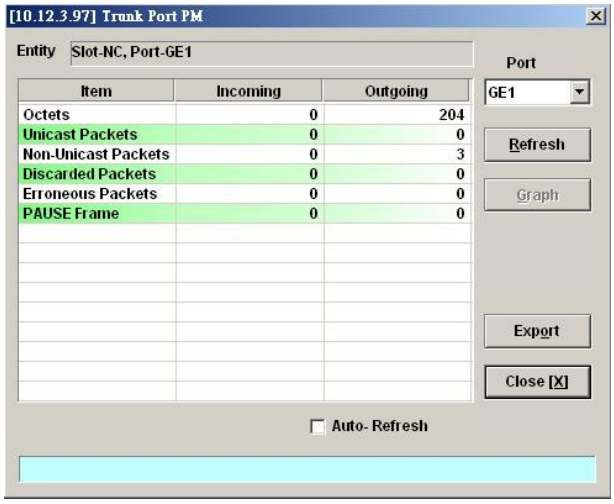



**Table 9-74 Trunk PM Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Octets | This indicates the numbers of incoming/outgoing octets via the specified GE port. |
| Unicast Packets | This indicates the numbers of incoming/outgoing unicast packets via the specified GE port. |
| Non-Unicast Packets | This indicates the numbers of incoming/outgoing non-unicast packets via the specified GE port. |
| Discarded Packets | This indicates the numbers of incoming/outgoing discarded packets on the specified GE port per RFC1213. |
| Erroneous Packets | This indicates the numbers of incoming/outgoing erroneous packets on the specified GE port per RFC1213. |
| PAUSE Frame | This indicates the numbers of incoming/outgoing IEEE 802.3x pause frames on the specified GE port. |
| **Function Button** | |
| Port | Select the GE port you want to observe. |
| Refresh | Click this button to refresh the List Table |
| Graph | Click this button to draw the 2D/3D diagram |
| Export | Click this button to save the contents of **Trunk Port PM** to the Personal Computer. |
| Close | Exit the **Trunk Port PM** Dialog. |

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# Chapter 10Fault Management

This chapter describes the system fault management. The AMS LCT supports real time monitoring of the NE.

This chapter contains the following sections:

- NE Alarm Information
- System Alarm Management

## NE Alarm Information

AMS LCT detects alarms from the NE system and interface card modules. Alarm detection is accomplished by way of either polling NE actively or receiving SNMP trap passively.

AMS LCT allows you to temporarily isolate a subset of event messages and display them in the List Table. By applying condition filters at top of dialog, the List Table will only contain the events that meet the specified filter criteria.

Follow the subsequent procedure to observe the current alarm information.

**Step 1** Click Diagnosis → NE Alarm → Active Alarm on **Main Menu** to open the **Active Alarm & Event** dialog, or alternative select the object form **Rack Tab** and use right mouse button to bring out the menu, select the **Alarm → Active Alarm**, as shown in Figure 10-107. Table 10-75 depicts the definition of fields..

**Step 2** Select the event from the List Table and click '**Detail**' button to view the detail of a specific event, as shown in Figure 10-108 and Table 10-76 depicts the related parameters.

**Figure 10-107 Active Alarm & Event List Dialog**

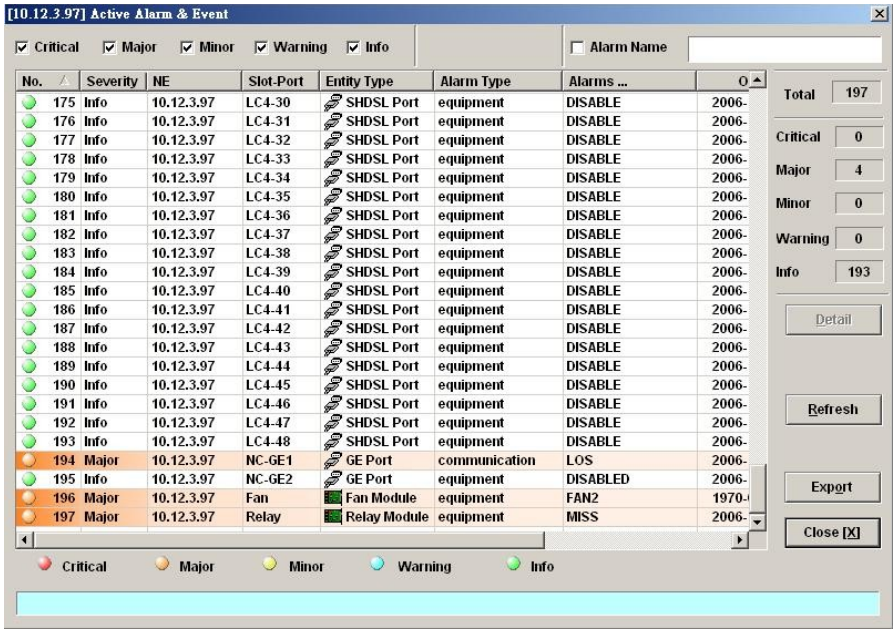


**Table 10-75 Active Alarm & Event List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the Table List. |
| Severity | This indicates the severity of the specified alarm/event. |
| NE | This indicates the NE IP address. |
| Slot-Port | This indicates where the alarm/event occurred. |
| Entity Type | This indicates the hardware type of the entity where the alarm/event occurred. |
| Alarm Type | This indicates the alarm type. |
| Alarms | This indicates the description of alarm. |
| Occur Time | This indicates the time when the indicated alarm/event occurs at the NE. |
| Receive Time | This indicates the time when the indicated alarm/event received by the AMS LCT. |
| **Function Button** | |
| Detail | Click this button to display the detail information of the specified alarm/event. |
| Refresh | Click this button to refresh the List Table |
| Export | Click this button to save the contents of **Active Alarm & Event List** to the Personal Computer. |
| Close | Exit the **Active Alarm & Event List** Dialog. |

The right-hand side of dialog provides a summary of all the active alarm status under the selected object (Slot-Port), with a display of the alarm of severity.

The List Table of Active Alarm & Event dialog displays the selected object. The title of dialog shows the scope of selecting object.

**Figure 10-108 Detailed Alarm & Event Dialog**

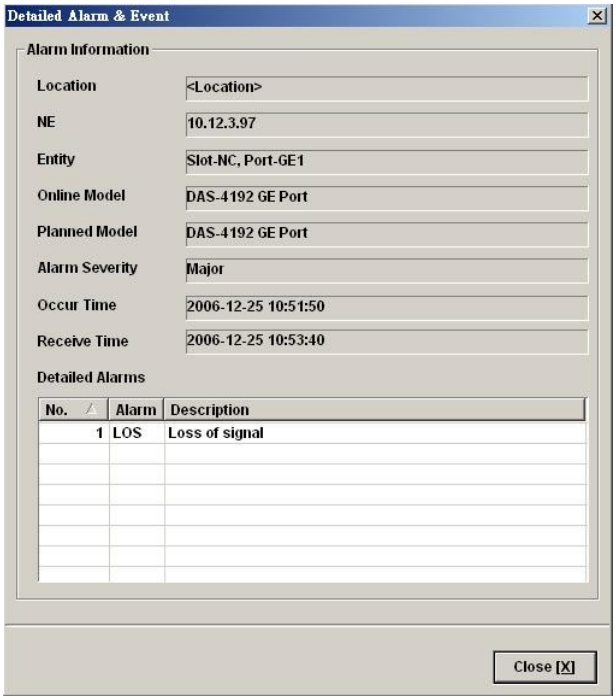



**Table 10-76 Detailed Alarm & Event Dialog Description**

| Field | Description |
|---|---|
| **Alarm Information** | |
| Location | This indicates the location of the NE |
| NE | This indicates the NE IP address. |
| Entity | This indicates the module where the alarm/event occurred. |
| Online Model | This indicates the online model name associated with the “Entity”. |
| Planned Model | This indicates the planned model name associated with the “Entity”. |
| Alarm Severity | This indicates the severity of the observed alarm/event. |
| Occur Time | This record occur time of the observed alarm/event. |
| Receive Time | This record receives time of the specified alarm/event. |
| Detailed Alarm | This describes the detailed alarm information. |

# System Alarm Management

The system alarm management allows you to manually gather the alarm information from NE. You can also configure the system alarm relay input and monitor the NE hardware operation status (like voltage, temperature).

This section contains the following three subsections.

- Alarm Synchronization
- Relay Input Management
- Hardware Status Monitoring

## Alarm Synchronization

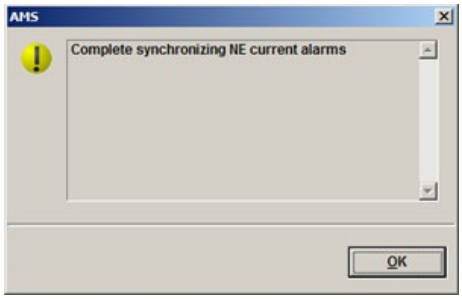
The AMS LCT provides automatic alarm synchronization. However, since the AMS LCT polls

the NE periodically, the polling may not reflect the real-time status. To supplement this issue, the AMS LCT supports the real-time manually alarm synchronization function.

Follow the subsequent procedure to perform the alarm synchronization function.

Click Diagnosis → NE Alarm → Alarm Sync on **Main Menu** to process the alarm synchronization, as shown in Figure 10-109.

**Figure 10-109 Completed Alarm Sync Dialog**




## Relay Input Management

The relay input management allows you to define the alarm relay input. Please see "*System Installation Guide*" for the definition. Once the normal status of input signal is different from the current status, the NE will launch an "abnormal status" alarm of the specified relay input to LCT.

Follow the subsequent procedure to manage the relay input.

**Step 1** Click Diagnosis → NE Alarm → Relay Input on **Main Menu** to open the **NE Relay Input** Dialog as shown in Figure 10-110 . Table 10-77 depicts the related parameters.

**Figure 10-110 NE Relay Input List Dialog**

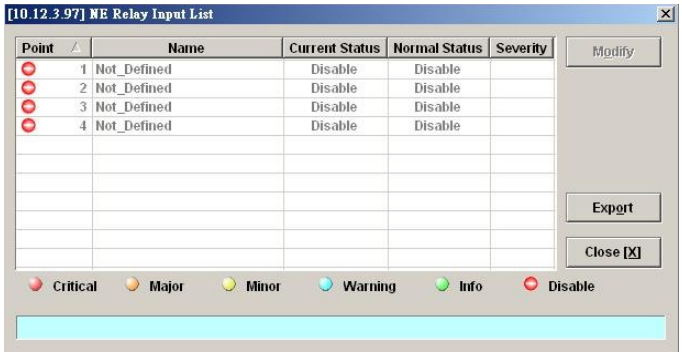



**Table 10-77 NE Relay Input List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Point | This indicates the location of relay input port. |

| Field | Description |
|---|---|
| Name | This indicates the name of replay input port. |
| Current Status | This indicates the current status of the specified relay input. |
| Normal Status | This indicates the normal status of the specified relay input that configured by operator. |
| Severity | This indicates the alarm severity while the status is abnormal. |

**Step 2** Select the row and click '**Modify**' button to modify the normal status of the relay input port as shown in Figure 10-111. Table 10-78 depicts the related parameters.

**Figure 10-111 NE Relay Input Modification Dialog**

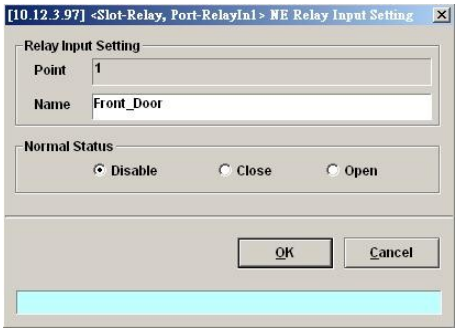



**Table 10-78 NE Relay Input Modification Dialog Description**

| Field | Description |
|---|---|
| **Relay Input Setting** | |
| Name | This gives a meaningful name to the specified relay input. |
| **Normal Status** | |
| Disable | Check this radio button to disable the specified relay input. |
| Close | Check this radio button to define normal status of the specified relay input is "Close". |
| Open | Check this radio button to define normal status of the specified relay input is "Open". |

## Hardware Status Monitoring

In the hardware monitoring list dialog, you can monitor the temperature and voltage status of any specific card module.

**Step 1** Click Diagnosis → NE Alarm → Hardware Monitoring on **Main Menu** to open the **Hardware Monitoring List** Dialog as shown in Figure 10-112. Table 10-79 depicts the related parameters.

**Step 2** Select the row and click '**Modify**' button to the system temperature threshold value as shown in Figure 10-113.

**Figure 10-112 Hardware Monitoring List Dialog**

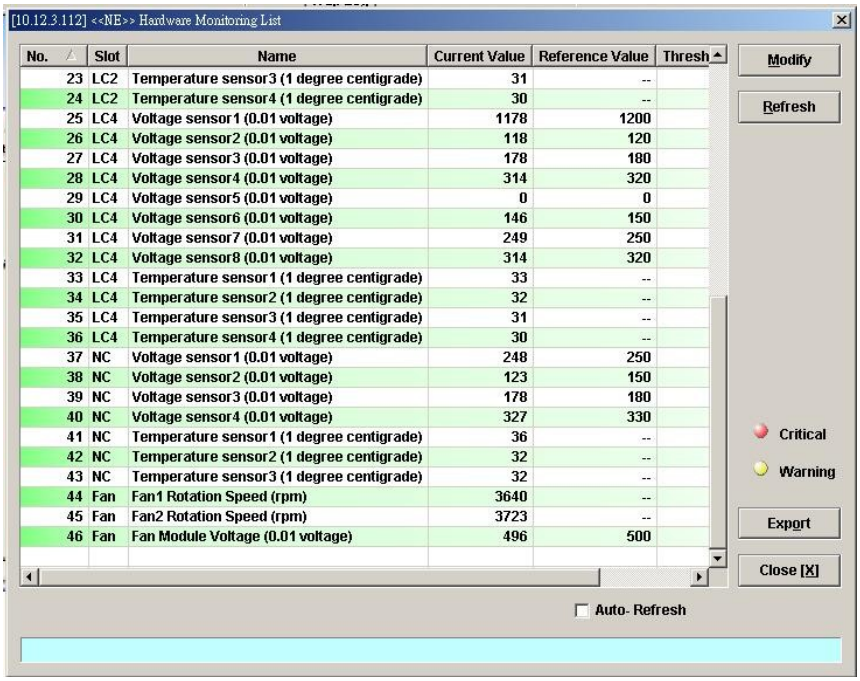
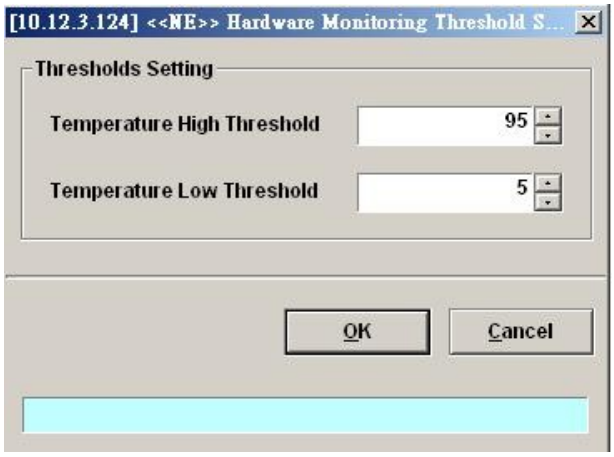



**Table 10-79 Hardware Monitoring List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Tale. |
| Slot | This indicates the location of line card or other card model. |
| Name | This indicates the name of sensor. |
| Current Value | This indicates the current value of the specified sensor. |
| Reference Value | This indicates the normal value of the specified sensor. |
| Threshold – Low/High | This indicates the low-high threshold value of the specified sensor. |
| **Function Button** | |
| Modify | Click this button to modify the system temperature threshold value as shown in Figure 10-113. |
| Refresh | Click this button to refresh the table list. |
| Export | Click this button to save the contents of **Hardware Monitoring List** to the Personal Computer. |
| Close | Exit the **Hardware Monitoring List** dialog. |

Figure 10-113 Hardware Monitoring Threshold Setting Dialog



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# Chapter 11Diagnosis Management

This chapter describes the diagnosis of xDSL line interface, GE interface, and system network connectivity.

This chapter contains the following sections:

- xDSL Line Interface Diagnosis
- Trunk Current Status Diagnosis
- Network Diagnosis

## xDSL Line Status Diagnosis

The NE supports the following five xDSL line status related diagnosis functions.

- Port Rate Status
- Bits Allocation Monitoring
- Loop Monitoring
- Loop Diagnosis (DELT <Dual-Ended Line Test>)
- Loop SELT Test (Single End Loop Test)

### Port Rate Status

Follow the subsequent procedure to monitor the ADSL current rate status.

**Step 1** Click Diagnosis → xDSL Current Status → Port Rate Status on **Main Menu** to open the **xDSL Port Selection Dialog** as shown in **Figure 11-114**.

**Step 2** Select the port you want to show and press Query button on the **xDSL Port Selection** Dialog to observe the current ADSL port status as shown in Figure 11-115. Table 11-80 depicts the related parameters.

**Figure 11-114 xDSL Port Selection Dialog**

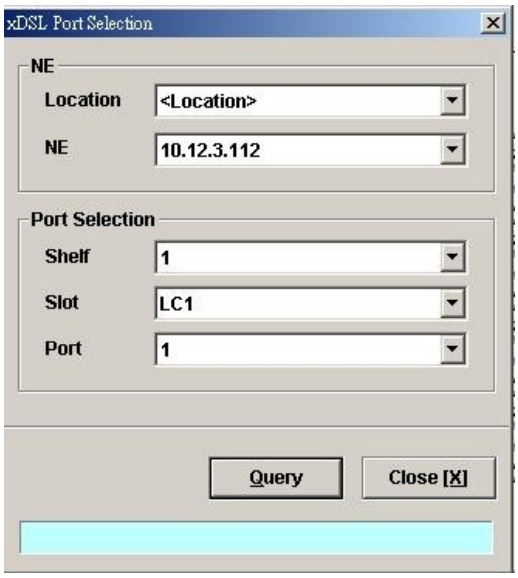


**Figure 11-115 ADSL Port Rate Status Dialog**

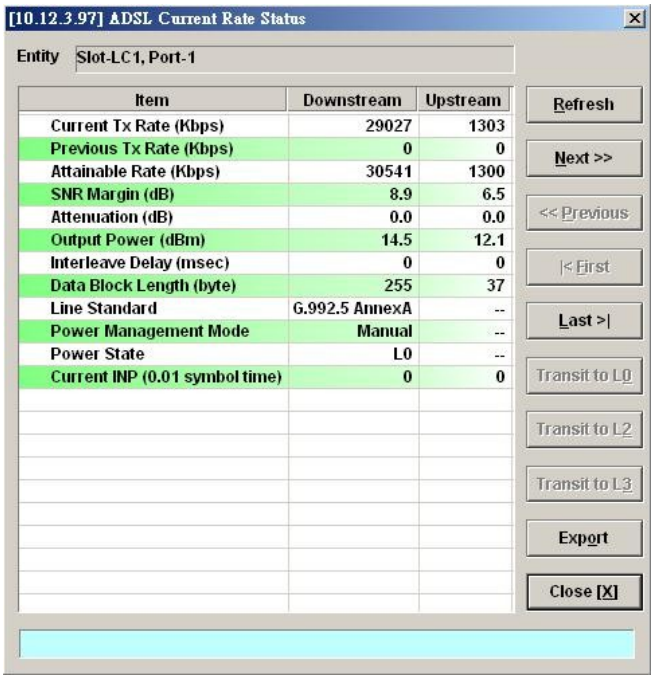



**Table 11-80 ADSL Port Rate Status Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Current Tx Rate (Kbps) | This indicates the current DS/US transmit rate in unit of Kbps. (in the current show-time) |
| Previous Tx Rate (Kbps) | This indicates the previous DS/US transmit rate in unit of Kbps. (in the last show-time) |
| Attainable Rate (Kbps) | This indicates the DS/US attainable rate in unit of Kbps. |
| SNR Margin (dB) | This indicates the DS/US SNR margin in unit of dB. |
| Attenuation (dB) | This indicates the DS/US attenuation in unit of dB. |
| Output Power (dBm) | This indicates the DS/US output power in unit of dBm. |
| Interleave Delay (msec) | This indicates the DS/US interleave delay whenever the line is in the interleaved mode. |
| Data Block Length (byte) | This indicates the DS/US ADSL data block length in unit of octet. |
| Line Standard | This indicates the adopted for the current ADSL connection. |
| Power Management Mode | This indicates the power management mode, either manual or. Automatic. |
| Power State | This indicates the power management state of this subscriber port per ITU-T 992.3. |
| Current INP (0.01 symbol time) | This indicates the DS/US INP (Impulse Noise Protection) symbol time in unit of (0.01 symbol time). |

**Table 11-1 ADSL Port Rate Status Dialog Description (Continued)**

| Field | Description |
|---|---|
| **Function Button** | |
| Refresh | Click this button to refresh the specified threshold value. |
| Next | Click this button to display the next subscriber port. |
| Previous | Click this button to display the previous subscriber port. |
| First | Click this button to go to the first subscriber status. |
| Last | Click this button to go to the last subscriber status. |
| Transit to L0 | Click this button to force the power management state to L0 per ITU-T 992.3. |
| Transit to L2 | Click this button to set the power management state to L2 per ITU-T 992.3. |
| Transit to L3 | Click this button to set the power management state to L3 per ITU-T 992.3. |
| Export | Click this button to save the contents of **ADSL Current Rate Status List** to the Personal Computer. |
| Close | Exit the **ADSL Current Rate Status** Dialog. |

Please refer to ITU-T 992.3 for the details of state transition among the power management state L0, L2 and L3.

## Bits Allocation Monitoring

The bit allocation monitoring function allows the operator to observe the number of bits carried on each tone of ADSL line in show-time.

Follow the subsequent procedure to monitor the bit allocation status on the specified ADSL connection.

**Step 1** Click Diagnosis → xDSL Current Status → Bits Allocation on **Main Menu** to open the **xDSL Port Selection Dialog** as shown in **Figure 11-114**.

**Step 2** Select the port you want to show and press Query button on the **xDSL Port Selection** Dialog to open the **xDSL Bit Allocation** Dialog as shown in Figure 11-116. Table 11-81 depicts the related parameters.

**Figure 11-116 ADSL Bit Allocation Status Dialog**

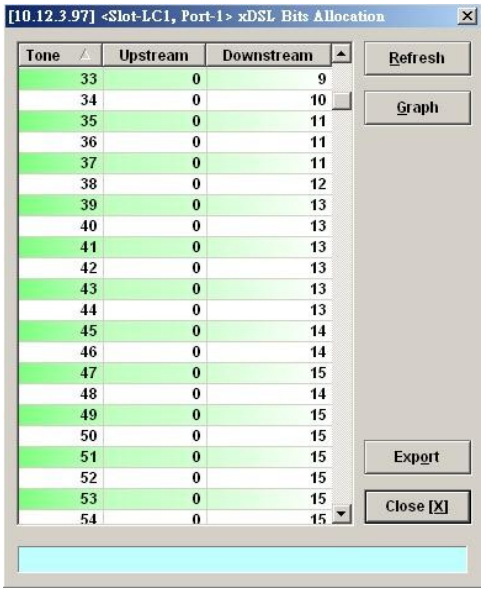
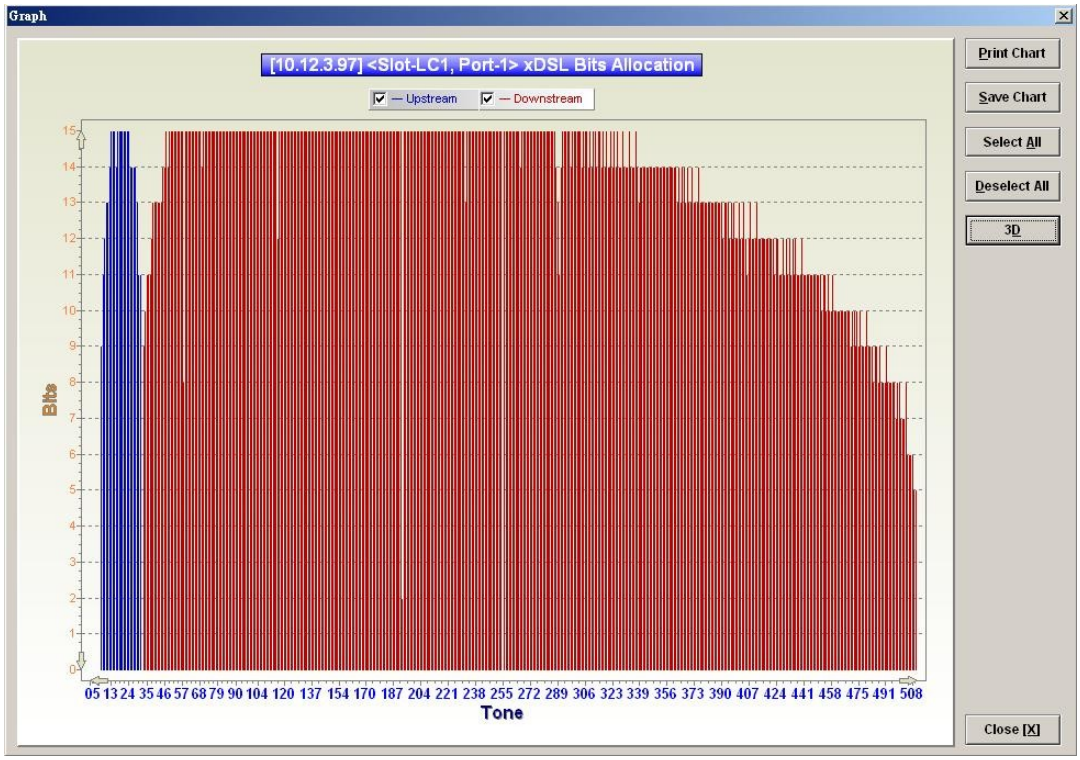



**Table 11-81 ADSL Bit Allocation Status Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Tone | This indicates number of tone index. |
| Upstream | This indicates the upstream bit allocation of the specified tone. |
| Downstream | This indicates the downstream bit allocation of the specified tone. |
| **Function Button** | |
| Refresh | Click this button to refresh the bit allocation list table. |
| Graph | Click this button to display the graph for the bit allocation. |
| Export | Click this button to save the contents of **ADSL Bit Allocation Status List** to the Personal Computer. |
| Close | Exit the **ADSL Bit Allocation Status** Dialog. |

**Step 3** Click “Graph” to show the graph of Bit Allocation as shown in Figure 11-117.

**Figure 11-117 Graph of Bit Allocation**




## Loop Monitoring

The loop monitoring function provides the records of ADSL loop characteristics measured during the last training. It is noted that the measured results are only available in the show-time.

**Step 1** Click Diagnosis → xDSL Current Status → Bits Allocation on **Main Menu** to open the **xDSL Port Selection Dialog** as shown in **Figure 11-114**.

**Step 2** Select the port you want to show and press Query button on the **xDSL Port Selection** Dialog to open the **ADSL Loop Monitoring** Dialog as shown in Figure 11-118. Table 11-82 depicts the related parameters.

**Step 3** Press Start button to get starting.

**Step 4** Click "Graph" button to show the graph of Magnitude as shown in Figure 11-119 or show the graph of Quiet Line PSD as shown in Figure 11-120

.

NOTE Please refer to ITU-T 992.3 for the details of loop monitoring parameters.

NOTE In comparison with the DELT, the ADSL loop is not corrupted whenever the operator performs the loop monitoring function.

**Figure 11-118 ADSL Loop Monitoring Dialog**

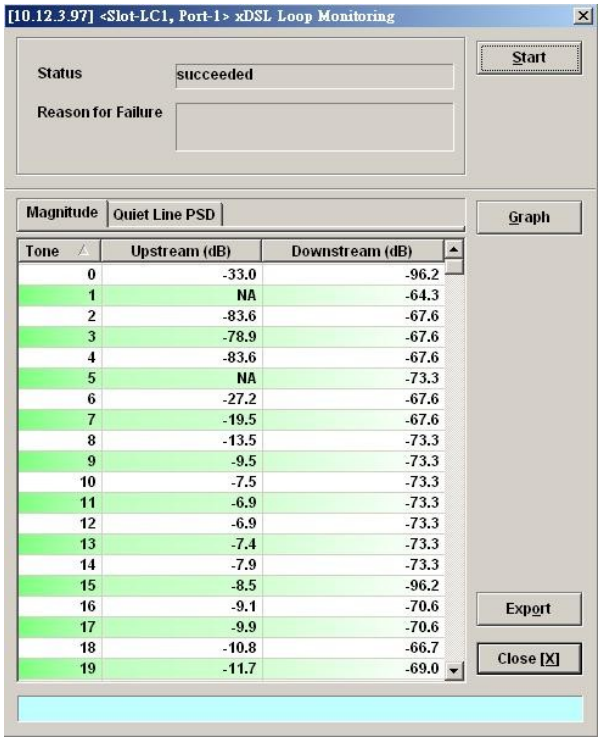



**Table 11-82 ADSL Loop Monitoring Dialog Description**

| Field | Description |
|---|---|
| Status | This indicates the status of the loop monitoring. |
| Reason for Failure | This indicates the result of failure case. |
| **Magnitude Dialog** | |
| Tone | This indicates the serial number of tone. |
| Upstream | This indicates the magnitude of transfer function per tone of the upstream channel. |
| Downstream | This indicates the magnitude of transfer function per tone of the downstream channel. |
| **Quiet Line PSD Dialog** | |
| Tone | This indicates the serial number of tone. |
| Upstream | This indicates the quiet line noise PSD per tone of the upstream channel. |
| Downstream | This indicates the quiet line noise PSD per tone of the downstream channel. |
| **Function Button** | |
| Start | Click this button to start the loop monitoring function. |
| Graph | Click this button to display the resultant graph of loop monitoring. |
| Export | Click this button to save the contents of **xDSL Loop Monitoring List** to the Personal Computer. |
| Close | Exit the **xDSL Loop Monitoring List** Dialog. |

NOTE Please refer to ITU-T 992.3 for the details of loop monitoring parameters.

**Figure 11-119 Graph of Loop Monitoring – Magnitude**


**Figure 11-120 Graph of Loop Monitoring – Quiet Line Noise PSD**

## Loop Diagnosis (DELT <Dual-Ended Line Test>)

The DELT loop diagnosis function provides mechanism to measure the ADSL loop quality. This action will interrupt the ADSL connection. However, more detailed inform are gathered in comparison with the aforementioned loop monitoring function.

**Step 1** Click Diagnosis → xDSL Current Status → Bits Allocation on **Main Menu** to open the **xDSL Port Selection Dialog** as shown in **Figure 11-114**.

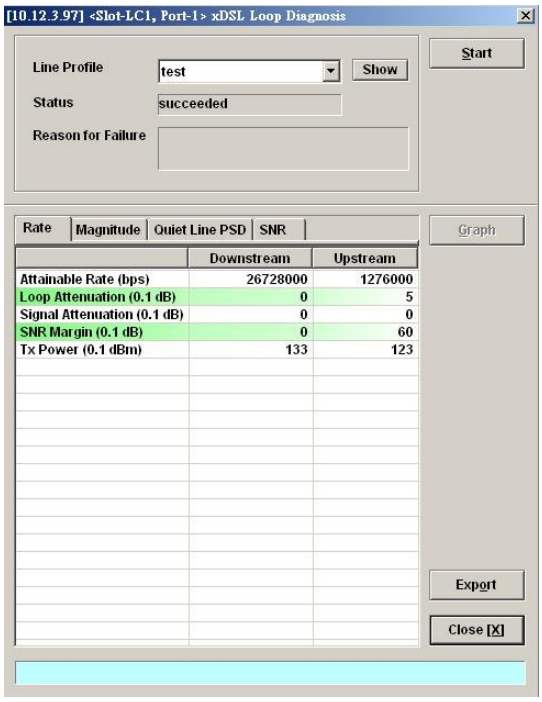
**Step 2** Select the port you want to show and press Query button on the **xDSL Port Selection** Dialog to open the **ADSL Loop Diagnosis** Dialog as shown in Figure 11-121. Table 11-83 depicts the related parameters.

**Step 3** Press Start button to get starting.

**Step 4** Click "Graph" button to show the graph of Magnitude as shown in Figure 11-122 or the graph of Quiet Line PSD as shown in Figure 11-123 or the graph of SNR as shown in Figure 11-124.

In comparison with the loop monitoring function, the ADSL loop is corrupted whenever the operator performs the DELT.

**Figure 11-121 ADSL Loop Diagnosis Dialog**




The above dialog lists the loop diagnostics parameters that display, see the ITU-T's G.992.3 and G.992.5 for more information.

**Table 11-83 ADSL Loop Diagnosis Dialog Description**

| Field | Description |
|---|---|
| Line Profile | Use this combo-box to select the line profile to test. |
| Status | This indicates the status of the DELT. |
| Reason for Failure | This indicates the result of failure case. |
| **Rate Dialog** | |
| Attainable Rate (bps) | This displays the attainable rate of DELT. |
| Loop Attenuation (0.1dB) | This displays the loop attenuation of DELT. |
| Signal Attenuation (0.1dB) | This displays the signal attenuation of DELT. |
| SNR Margin (0.1dB) | This displays the SNR margin value of DELT. |
| Tx Power (0.1dB) | This displays the transmit power value of DELT. |
| **Magnitude Dialog** (The magnitude of ADSL line transfer function) | |
| Tone | This indicates the number of the tone. |
| Upstream | This indicates the upstream magnitude of the specified tone. |
| Downstream | This indicates the downstream magnitude of the specified tone. |
| **Quiet Line PSD Dialog** (PSD of Quiet Line Noise) | |
| Tone | This indicates the number of the tone. |
| Upstream | This indicates the upstream PSD of Quiet Line Noise of the specified tone. |
| Downstream | This indicates the downstream PSD of Quiet Line Noise of the specified tone. |
| **SNR Dialog** | |
| Tone | This indicates the number of the tone. |
| Upstream | This indicates the upstream SNR of the specified tone. |
| Downstream | This indicates the downstream SNR of the specified tone. |
| **Function Button** | |
| Show | Click this button to display the selected line profile. |
| Start | Click this button to start the DELT function. |
| Graph | Click this button to display the result graph of DELT. |
| Export | Click this button to save the results of **ADSL Loop Diagnosis (DELT)** to the Personal Computer. |
| Close | Exit the **ADSL Loop Diagnosis (DELT)** Dialog. |

Please refer to ITU-T 992.3 for the details of DELT.

‘Upshift Noise Margin’, ‘Downshift Noise Margin’, ‘Upshift Time’ and ‘Downshift Time’ are only applied to the Rate Mode ‘Adaptive at Run-Time’.

**Figure 11-122 Graph of DELT result – Magnitude**


**Figure 11-123 Graph of DELT result – Quiet Line PSD**

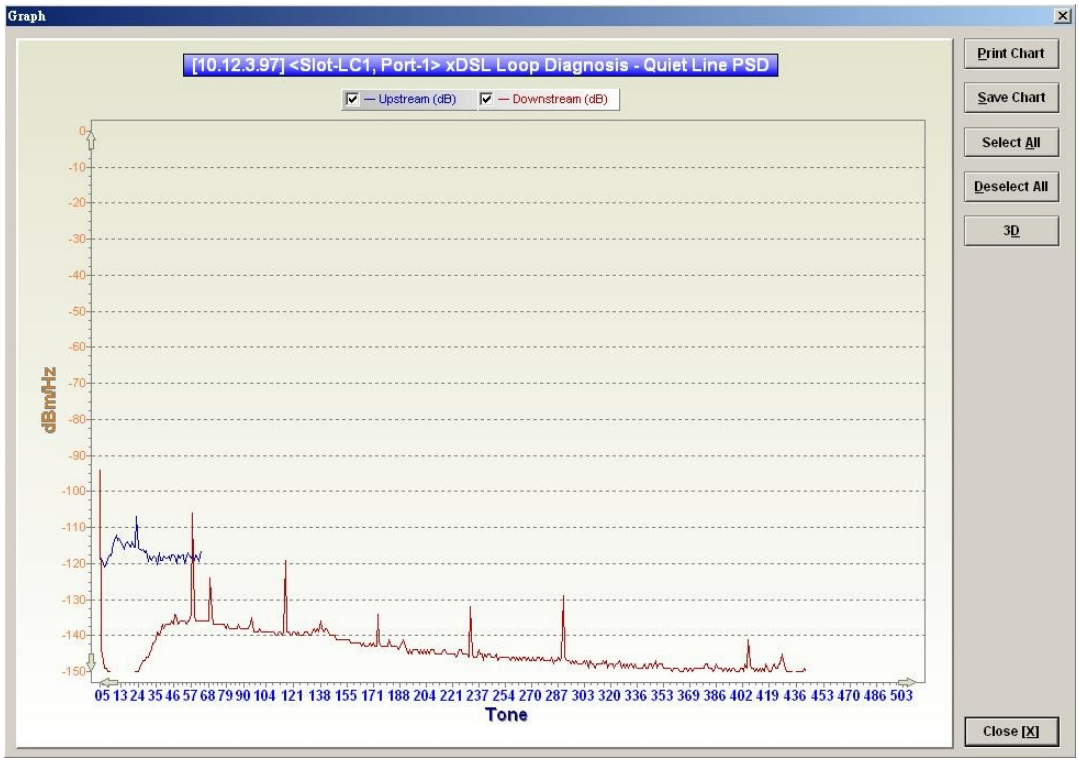
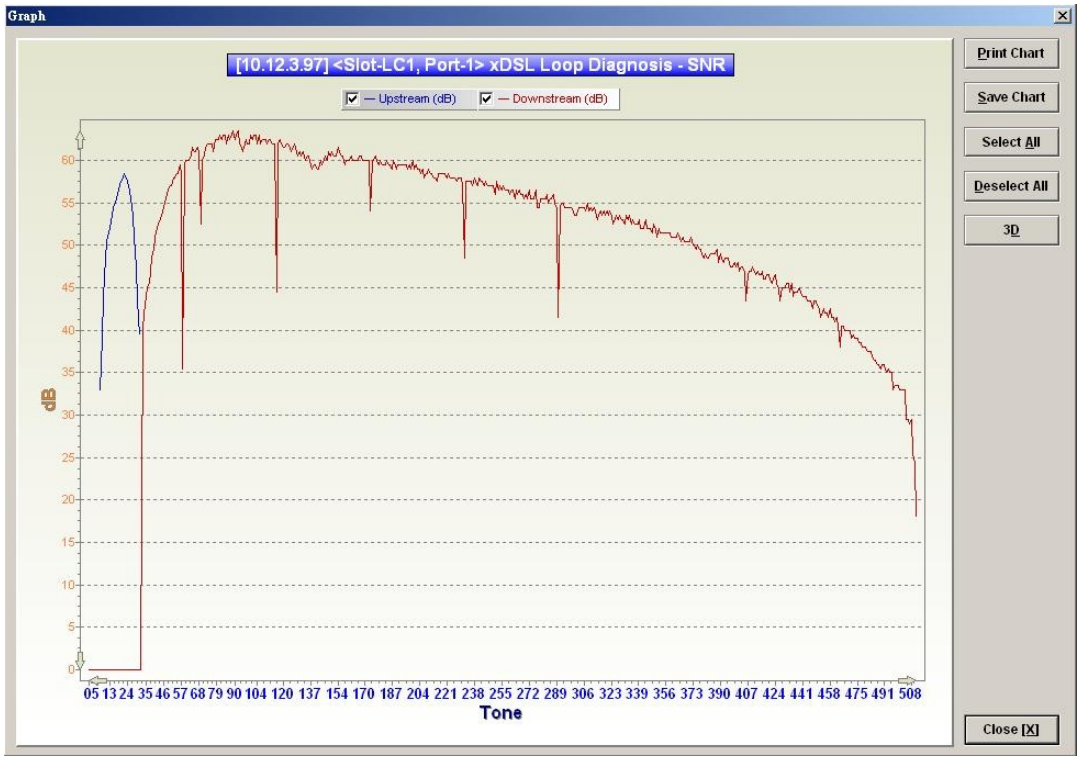


**Figure 11-124 Graph of DELT result – SNR**




## Loop SELT Test (Single End Loop Test)

The SELT loop function diagnosis function is to estimate the distance of the DSL connection from the NE to the subscriber's location without connecting a subscriber device.

**Step 1** Click Diagnosis → xDSL Current Status → Bits Allocation on **Main Menu** to open the **xDSL Port Selection Dialog** as shown in **Figure 11-114**.

**Step 2** Select the port you want to show and press Query button on the **xDSL Port Selection** Dialog to open the **ADSL Loop SELT Test** Dialog as shown in Figure 11-125 and Table 11-84 depicts the related parameters.

**Step 3** Press Start button to get starting.

**Figure 11-125 ADSL Loop SELT Test**

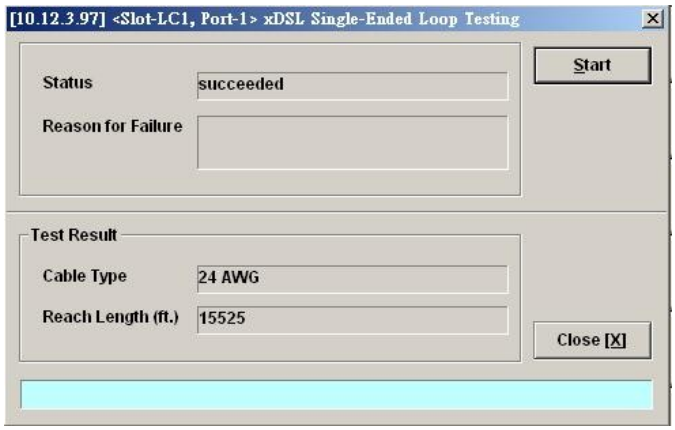


**Table 11-84 ADSL Loop SELT Test Dialog Description**

| Field | Description |
|---|---|
| Status | This indicates the status of the SELT. |
| Reason for Failure | This indicates the result of failure case. |
| **Test Result** | |
| Cable Type | This displays the estimated cable type. |
| Reach Length (ft.) | This displays the estimated cable length. |
| **Function Button** | |
| Start | Click this button to start the SELT. |
| Close | Exit the SELT dialog. |

Please refer to ITU-T 992.3 for the details of SELT.

# xDSL Service Status Diagnosis

The NE supports the following six xDSL service status related diagnosis functions.

- Bridge Filtering Database
- VLAN Membership
- xDSL MAC Spoofing Statu
- Multicast Channel Status
- Multicast Group Membership
- xDSL Downstream Broadcast Forwarding VLANs

## Bridge Filtering Database

The filtering database (FDB) displays the status of MAC address recorded in the line card on a per PVC basis.

Click Diagnosis → xDSL Current Status → Bridge Filtering Database on **Main Menu** to open the **Filtering Database Entry List** Dialog as shown in Figure 11-126. Table 11-85 depicts the related parameters.

**Figure 11-126 Bridge Filtering Database Entry List Dialog**

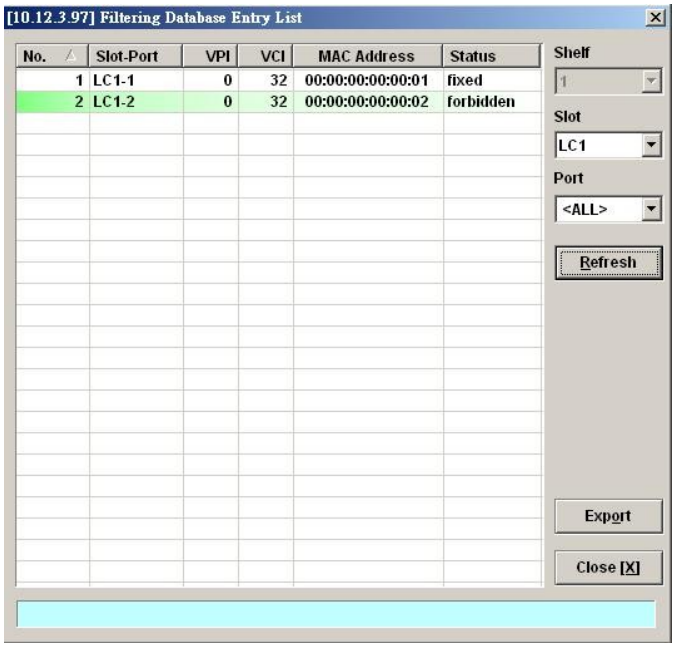



**Table 11-85 Bridge Filtering Database Entry List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This indicates the location of xDSL port. |
| VPI | This indicates the VPI of the specified entry. |
| VCI | This indicates the VCI of the specified entry. |
| MAC Address | This indicates the MAC address of the specified entry. |
| Status | This indicates the reason the MAC address appears in this entry. The definitions of status are as follows.<br>• **learned:** It indicates the MAC address is dynamically learned by the NE.<br>• **forbidden:** It indicates the MAC address is manually set for the NE to drop the upstream Ethernet frame of the identical source MAC address.<br>• **fixed:** It indicates the MAC address is manually set for the NE to forward the upstream Ethernet frame of the identical source MAC address. |
| **Function Button** | |
| Slot | Use this combo-box to select the line card. |
| Port | Use this combo-box to select the xDSL port. |
| Refresh | Click this button to refresh the list table. |
| Export | Click this button to save the contents of **Filtering Database Entry List** to the Personal Computer. |
| Close | Exit the **Filtering Database Entry List** Dialog. |

## VLAN Membership

The VLAN membership displays the list of xDSL ports belonging to a VLAN of particular VLAN ID.

Click Diagnosis → xDSL Current Status → VLAN Membership on **Main Menu** to open the **VLAN Membership List** Dialog as shown in Figure 11-127. Table 11-86 depicts the related parameters.

**Figure 11-127 VLAN Membership List Dialog**

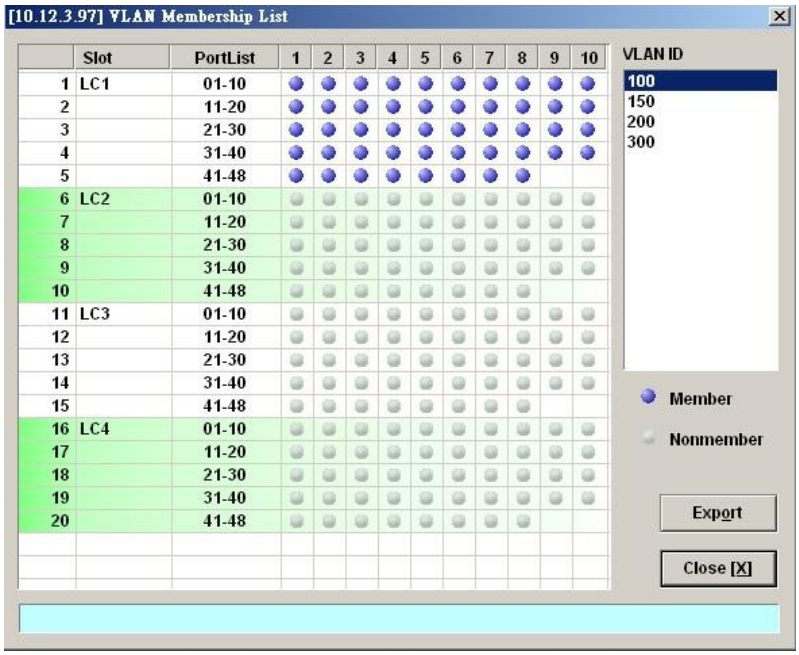



**Table 11-86 VLAN Membership List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| Slot | This indicates the location of line card. |
| Port-List | This indicates the location of xDSL port.<br>The blue point indicates that the corresponding port is a member port of a VLAN of the specified VLAN ID. |
| VLAN ID | This specifies the VLAN ID of the VLAN to show its members ports. Change the VLAN ID by clicking VLAN ID value with left button on mouse. |
| **Function Button** | |
| Export | Click this button to save the contents of **VLAN Membership List** to the Personal Computer. |
| Close | Exit the **VLAN Membership List** Dialog. |

## xDSL MAC Spoofing Status

The xDSL MAC Spoofing displays the duplicate MAC address from two or more individual xDSL subscriber ports.

Click Diagnosis → xDSL Current Status → MAC Spoofing Status on **Main Menu** to open the **MAC Spoofing Status List** Dialog as shown in Figure 11-128. Table 11-87 depicts the related parameters.

**Figure 11-128 MAC Spoofing Status List Dialog**

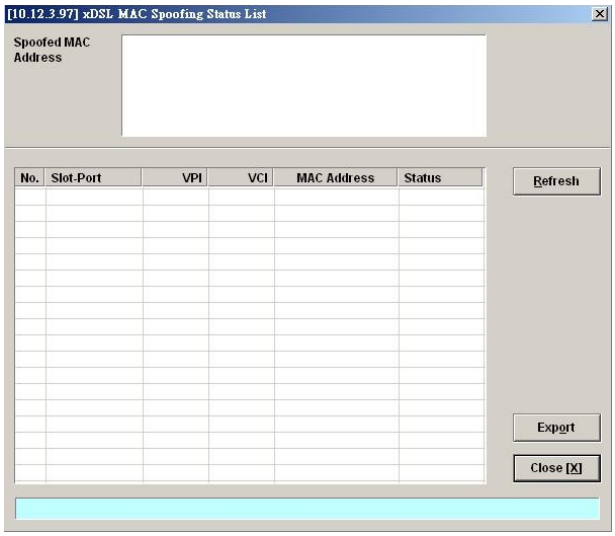


**Table 11-87 MAC Spoofing Status List Dialog Description**

| Field | Description |
|---|---|
| **Spoofed MAC Address** | This displays the current spoofed MAC address. |
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This indicates the location of xDSL port where the spoofed MAC address is observed. |
| VPI | This indicates the VPI of the PVC where the spoofed MAC address is observed. |
| VCI | This indicates the VCI of the PVC where the spoofed MAC address is observed. |
| MAC Address | This indicates the spoofed MAC address |
| Status | This indicates the current status of the recorded MAC address. The definition of possible statuses is as follows.<br>• **learned (unique):** It indicates the dynamically learned MAC address is unique within the NE.<br>• **spoofed (pass):** It indicates the dynamically learned MAC address is spoofed. The NE forwards the packet from this subscriber port as it appears first.<br>• **spoofed (deny):** It indicates the dynamically learned MAC address is spoofed. The NE drop the packet from this subscriber port as it does not appears first. |
| **Function Button** | |
| Refresh | Click this button to refresh the Spoofed MAC Address list. |
| Export | Click this button to save the contents of **Spoofed MAC Address List** to the Personal Computer. |
| Close | Exit the **Spoofed MAC Address List** Dialog. |

Whenever the NE detects spoofed MAC address, the NE launches a SNMP traps to the SNMP trap managers as specified in the section “Configuring the SNMP Trap Manager” in Chap 4.

## Multicast Channel Status

Whenever the subscriber clicks his remote controller to watch a TV channel transmitted via the ADSL line, the set-top-box sends the corresponding IGMP report packet. The NE inspects the received IGMP report packet to check whether its multicast IP hits the associated multicast service profile (MSP) or not. If the multicast IP hits the associated MSP, the NE forwards the IGMP packet. In the meantime, the NE also records the multicast IP in the **Multicast Channel Status List** s shown in Figure 11-129. Refer the related information to the section “Multicast Service Profile” in 5.

Click Diagnosis → xDSL Current Status → Multicast Channel Status on **Main Menu** to open the **Multicast Channel Status List** Dialog as shown in Figure 11-129. Table 11-88 depicts the related parameters.

**Figure 11-129 Multicast Channel Status List Dialog**

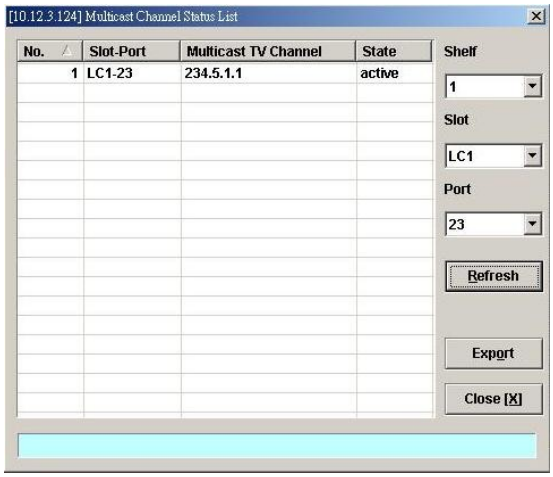



**Table 11-88 Multicast Channel Status List Dialog Description**

| Field | Description |
|---|---|
| **List Table** | |
| No. | This indicates the serial number of entry of the List Table. |
| Slot-Port | This indicates the location of xDSL port. |
| Multicast TV Channel | This indicates that recorded multicast channel group IP address which the NE has received the corresponding IGMP report (Join) packet. |
| Status | This indicates the current status of the multicast channel group. The definition of possible statuses is as follows.<br>• **Active:** The NE received the subscriber's IGMP report.<br>• **Poll:** The NE does not receive the subscriber's IGMP report which responds to the IGMP server/proxy's IGMP query packet.<br>• **Idle:** The NE retries to query the subscriber for "IGMP Robustness retry" times, but it does not get the response. In fact, the LCT will not show the entries of status equal to **Idle**. |
| **Function Button** | |
| Shelf | Use this combo-box to select the NE. |
| Slot | Use this combo-box to select the line card. |
| Port | Use this combo-box to select the xDSL ports, either one port or all ports. |
| Refresh | Click this button to refresh the multicast channel status. |
| Export | Click this button to save the contents of **Multicast Channel Status List** to the Personal Computer. |
| Close | Exit the **Multicast Channel Status List** Dialog. |

## Multicast Group Membership

The multicast group membership list displays the list of xDSL subscriber ports from which the NE has received the IGMP report (Join) packets to join a particular multicast TV channel. In other word, the multicast group membership list shows the xDSL member ports of a particular multicast TV Channel.

Click Diagnosis → xDSL Current Status → Multicast Group Membership on **Main Menu** to open

the **Multicast Group Membership List** Dialog as shown in Figure 11-130. Table 11-89 depicts the related parameters.

**Figure 11-130 Multicast Group Membership List Dialog**

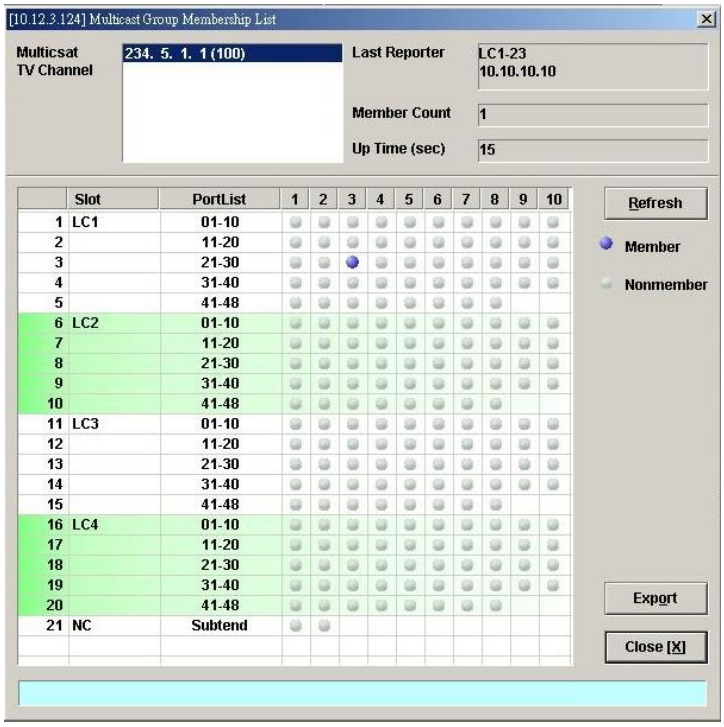



**Table 11-89 Multicast Group Membership List Dialog Description**

| Field | Description |
|---|---|
| Multicast TV Channel | Use this list to select the multicast TV Channel to display its members. |
| Last Reporter | This indicates the last xDSL subscriber launches an IGMP report to join the specified multicast TV channel. Its representation includes the location of the subscriber as well as its IP address. |
| Member Count | This indicates the number of xDSL subscribers currently join the specified multicast TV channel. |
| Up Time (sec) | This indicates the time period since the NE received the first IGMP report to join the specified multicast TV channel. |
| **List Table** | |
| Slot | This indicates the location of line card. |
| Port-List | This indicates the port list number. The blue point means that the specified port is a member of the specified multicast channel.<br>Note: In the case that the RSTP is disabled, “Subtend” indicates the port GE2.<br>Note: In the case that the RSTP is enabled, “Subtend” indicates the “designated port” (either port GE1 or port GE2). |
| **Function Button** | |
| Refresh | Click this button to refresh the multicast group membership list. |
| Export | Click this button to save the contents of **Multicast Group Membership List** to the Personal Computer. |
| Close | Exit the **Multicast Group Membership List** Dialog. |

## xDSL Downstream Broadcast Forwarding VLANs

The xDSL Downstream Broadcast Forwarding VLANs List displays the list of VLANs which are allowed to forward the downstream broadcast traffic.

Click Diagnosis → xDSL Current Status → Broadcast Filter Status on **Main Menu** to open the **xDSL Forwarding Broadcast VLANs List** Dialog as shown in Figure 11-131 and Table 11-90 depicts the related parameters.

**Figure 11-131 xDSL Forwarding Broadcast VLANs List**

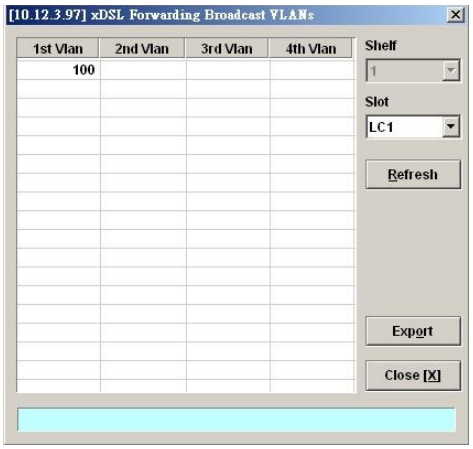



**Table 11-90 xDSL Forwarding Broadcast VLANs List Description**

| Field | Description |
|---|---|
| **List Table** | This displays current VLAN ID of VLAN which forwards the broadcast packets. |
| **Function Button** | |
| Slot | Use this combo-box to select the location of xDSL line card. |
| Refresh | Click this button to refresh the Forwarding Broadcast VLANs list. |
| Export | Click this button to save the contents of **xDSL Forwarding Broadcast VLANs List** to the Personal Computer. |
| Close | Exit the **xDSL Forwarding Broadcast VLANs List** Dialog. |

# Trunk Current Status Diagnosis

This section contains the following two subsections.

- LACP Diagnosis
- RSTP Diagnosis

## LACP Diagnosis

Follow the subsequent procedures to view the current LACP status.

Click Diagnosis → Trunk Current Status → Link Aggregation Status on **Main Menu** to open the **Current Status of Link Aggregation Dialog**. Figure 11-132 shows **Current Status of Link Aggregation Dialog**, and Table 11-91 depicts the related parameters.

**Figure 11-132 Current Status of Link Aggregation Dialog**

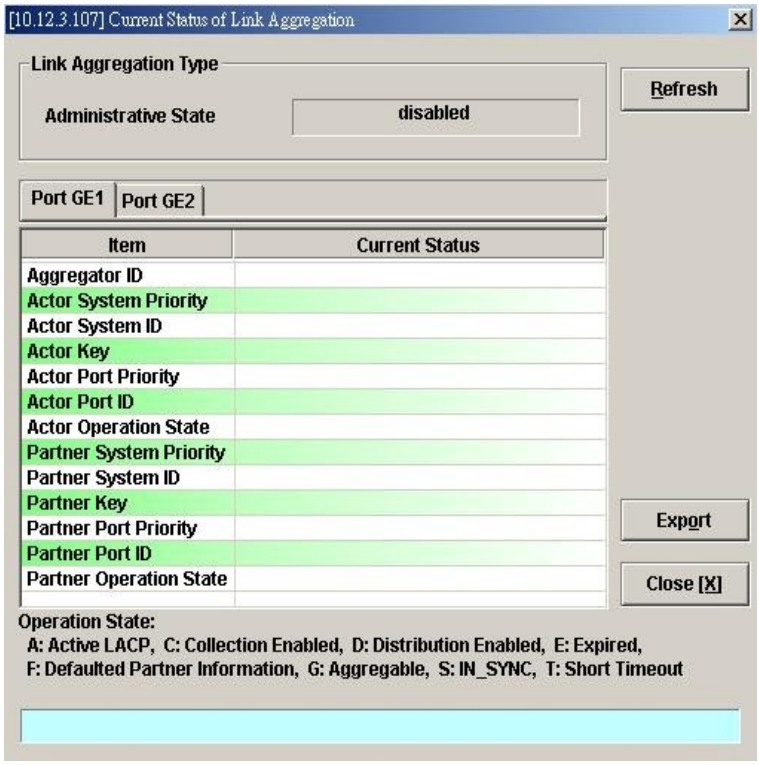


**Table 11-91 Current Status of Link Aggregation Dialog Description**

| Field | Description |
|---|---|
| **Link Aggregation Type** | |
| Administrative State | This indicates the current setting of the field **Link Aggregation Type** of **LACP for Trunk Ports Dialog**. |
| **Port GE1/ Port GE2 (Tab)** | |
| Aggregator ID | It indicates the ID of aggregation group which the port belongs to. |
| Actor System Priority | It indicates the system priority configured for the LACP running on the NE. |
| Actor System ID | It indicates a 6-octet unique system ID for the LACP running on the NE. It is the MAC address of one of the GE port. |
| Actor Key | It indicates a 2-octet operational Key value of the GE port for the LACP running on the NE. |
| Actor Port Priority | It indicates a 2-octet port priority configured for the LACP running on the NE. |
| Actor Port ID | It indicates the port ID for the LACP running on the NE. |
| Actor Operation State | It indicates the current port status of the LACP on the NE per the IEEE 802.3 Annex 30C.6.<br>A: lacpActivity,<br>T: lacpTimeout(1),<br>G: aggregation(2),<br>S: synchronization(3),<br>C: collecting(4),<br>D: distributing(5),<br>F: defaulted(6),<br>E: expired(7) |
| Partner System Priority | It indicates the system priority of the peer LACP partner. |
| Partner System ID | It indicates a 6-octet unique system ID of the peer LACP partner. |
| Partner Key | It indicates a 2-octet operational Key value of GE port of the peer LACP partner. |
| Partner Port Priority | It indicates a 2-octet GE port priority of the peer LACP partner. |
| Partner Port ID | It indicates the port ID of GE port of the peer LACP partner. |
| Partner Operation State | It indicates the current GE port status of the peer LACP partner per the IEEE 802.3 Annex 30C.6.<br>A: lacpActivity,<br>T: lacpTimeout(1),<br>G: aggregation(2),<br>S: synchronization(3),<br>C: collecting(4),<br>D: distributing(5),<br>F: defaulted(6),<br>E: expired(7) |

## RSTP Diagnosis

Follow the subsequent procedures to view the current RSTP-Bridge status.

Click Diagnosis→ Trunk Current Status → RSTP Status on **Main Menu** to open the **Current Status of Rapid Spanning Tree Protocol– Bridge Dialog** as shown in Figure 11-133. Table 11-92 depicts the related parameters.

**Figure 11-133 Current Status of Rapid Spanning Tree Protocol – Bridge Dialog**

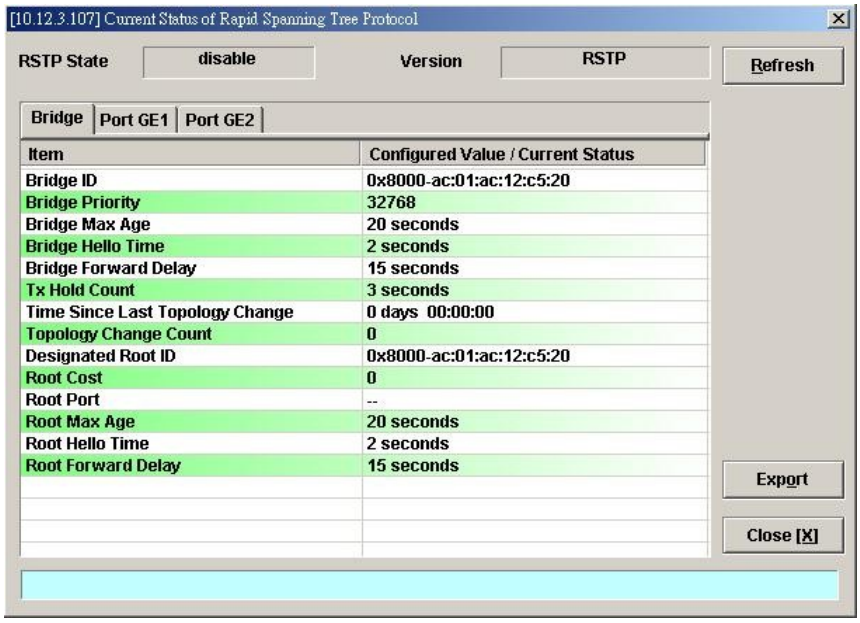



**Table 11-92 Current Status of Rapid Spanning Tree Protocol – Bridge Dialog Description**

| Field | Description |
|---|---|
| RSTP State | This indicates the enable/disable the RSTP function at GE ports. |
| Version | This indicates the RSTP version the NE runs. |
| **Bridge (Tab)** | |
| Bridge ID | It indicates an unique 8-octet bridge ID which consists of a 2-octet Bridge Priority and a 6-octet MAC address. |
| Bridge Priority | It indicates the configured 2-octet bridge priority. |
| Bridge Max Age | It indicates the configured maximum age of STP/RSTP. |
| Bridge Hello Time | It indicates the configured amount of time between the transmission of configuration bridge PDUs by this node on any port when it is the root of the spanning tree or trying to become so. |
| Bridge Forward Delay | It indicates the configured time value that controls how fast a port changes its spanning state when moving towards the Forwarding state. |
| Tx Hold Count | It indicates the configured Bridge Tx Hold Count. |
| Time Since Last Topology Change | It indicates the time since last topology change. |
| Topology Change Count | It indicates the count of topology changes. |
| Designated Root ID | It indicates the Root Bridge ID once the RSTP selects a bridge as a root bridge. |
| Root Cost | It indicates the total cost from the NE to the root bridge. |
| Root Port | It indicates the port toward the root bridge |
| Root Max Age | It indicates the Max Age determined by RSTP. |
| Root Hello Time | It indicates the Hello Time determined by RSTP. |
| Root Forward Delay | It indicates the Forward Delay determined by RSTP. |

**Port GE1/Port GE2**

Follow the subsequent procedures to view the current RSTP- Port GE1/Port GE2 status.

Click the **Port GE1/Port GE2** tab in **Current Status of Rapid Spanning Tree Protocol Dialog** to launch the **Current Status of Rapid Spanning Tree Protocol –Port GE1/Port GE2 Dialog** as shown in Figure 11-134. Table 11-93 depicts the related parameters.

**Figure 11-134 Current Status of Rapid Spanning Tree Protocol –Port GE1/Port GE2 Dialog**

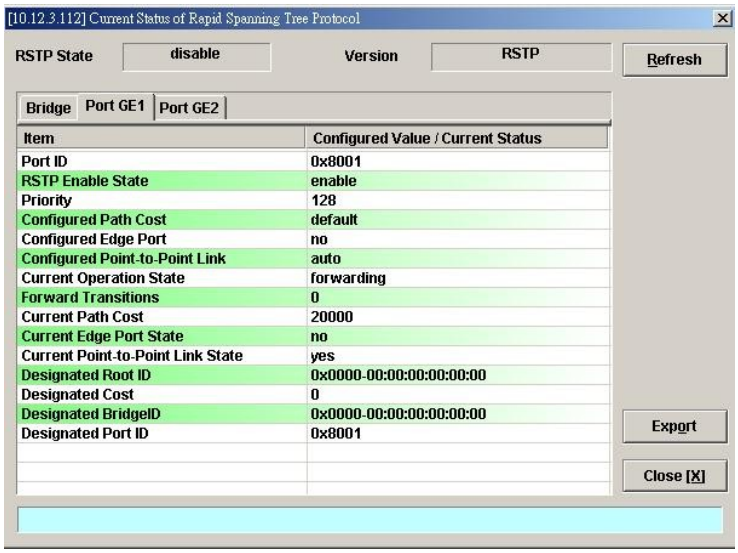


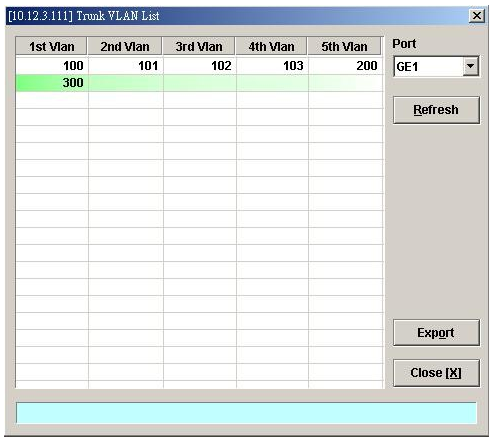
**Table 11-93 Current Status of Rapid Spanning Tree Protocol –Port GE1/Port GE2 Dialog Description**

| Field | Description |
|---|---|
| RSTP State | This indicates the enable/disable the RSTP function at GE ports. |
| Version | This indicates the RSTP version the NE runs. |
| **Port GE 1 / Port GE 2 (Tab)** | |
| Port ID | It indicates the port ID the GE port. |
| RSTP Port Enable State | It indicates the current RSTP enabled/disabled status of the GE port. |
| Priority | It indicates the configured port priority the GE port. |
| Configured Path Cost | It indicates the configured path cost of the GE port. |
| Configured Edge Port | It indicates whether the GE port is configured as Edge Port or not. |
| Configured Point-to-Point Link | It indicates the configured status of the LAN segment attached to this GE port.<br>• Yes: It indicates that this port should always be treated as if it is connected to a point-to-point link.<br>• No: It indicates that this port should be treated as having a shared media connection<br>• Auto-detection: It indicates that this port is considered to have a point-to-point link if it is an Aggregator and all of its members are aggregatable, or if the MAC entity is configured for full duplex operation, either through auto-negotiation or by management means. |
| Current Operation State | It indicates the current operation state of GE port. |
| Forward Transitions | It indicates the number of times this port has transitioned from the Learning state to the Forwarding state. |
| Current Path Cost | It indicates the configured numerical path cost of the GE port. |
| Current Edge Port State | It indicates whether the GE port is edge port or not. |
| Current Point-to-Point Link State | It indicates whether the GE port connects with point-to-point link or not. |
| Designated Root ID | It indicates the unique Bridge Identifier of the Bridge recorded as the Root in the Configuration BPDUs transmitted by the designated Bridge for the segment to which the port is attached. |
| Designated Cost | It indicates the path cost of the Designated Port of the segment connected to this port. This value is compared to the Root Path cost field in received bridge BPDUs |
| Designated Bridge ID | It indicates the Bridge Identifier of the bridge which this port considers to be the Designated Bridge for this port's segment. |
| Designated Port ID | The Port Identifier of the port on the Designated Bridge for this port's segment. |

## UGE VLAN List

Follow the subsequent procedures to view the current UGE VLAN status.

Click Diagnosis → Trunk Current Status → UGE VLAN Status on **Main Menu** to open the **UGE VLAN Status Dialog** as shown in




# Network Diagnosis

The AMS LCT supports the following three network related diagnosis functions to check the connection between the AMS LCT and NE.

- Ping NE
- Traceroute
- Telnet
- Check SNMP Connection

## Ping NE

Use the 'Ping NE' echo to check the NE connection from AMS LCT host.

Click Diagnosis → NE Connection → Ping NE on **Main Menu** to open the **Ping NE** Dialog as shown in Figure 11-135 and Table 11-94 depicts the related parameters.

**Figure 11-135 Ping NE from Client Dialog**

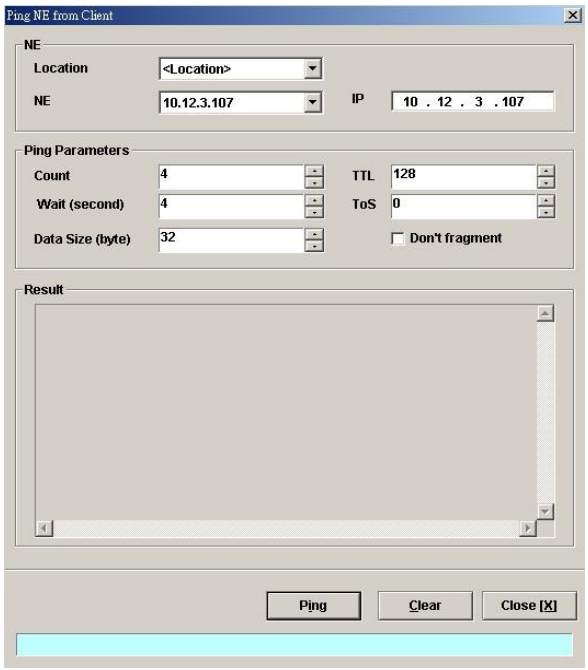


**Table 11-94 Ping NE from Client Dialog Description**

| Field | Description |
|---|---|
| **NE** | |
| Location | Use this combo-box to select location. |
| NE | Use this combo-box to select NE. |
| IP | This indicates the IP address of the selected NE. |
| **Ping Parameters** | |
| Count | Use this field to select the number of ICMP ping packets to be launched by the LCT.<br>Valid value is 1 ~ 99. |
| Wait (second) | Use this field to select the waiting time of ICMP packet.<br>Valid value is 1 ~ 30. |
| Data Size (byte) | Use this field to select the payload size of ICMP ping packet.<br>Valid value is 32 ~ 9996. |
| TTL | Use this field to select the TTL (Time To Live) of ICMP ping packet.<br>Valid value is 1 ~ 255. |
| ToS | Use this field to select the ToS (Type of Serveice) of ICMP ping packet.<br>Valid value is 0 ~ 255. |
| Don't fragment | Check this check box to set the "Do not fragment"-bit of ICMP ping packet. |

**Table 11-95 Ping NE from Client Dialog Description (continued)**

| Field | Description |
|---|---|
| **Function Button** | |
| Ping | Start sending ICMP packets. |
| Clear | Clear all the result above. |
| Close | Exit the Ping dialog. |

## Traceroute

Use the 'Traceroute" to check the NE connection from AMS LCT host.

Click Diagnosis → NE Connection → Traceroute on **Main Menu** to open the **Traceroute NE** Dialog as shown in Figure 11-136. Table 11-96 depicts the related parameters.

**Figure 11-136 Tracer Route NE from Client Dialog**

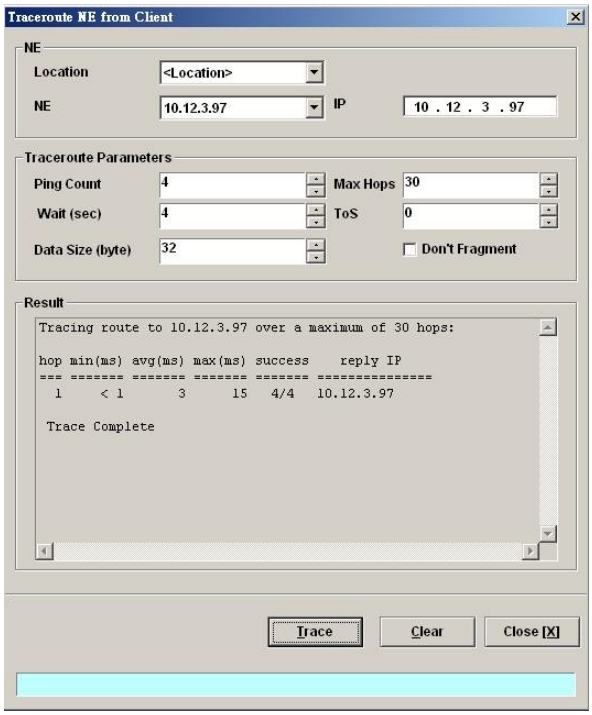


**Table 11-96 Trace Route NE from Client Dialog Description**

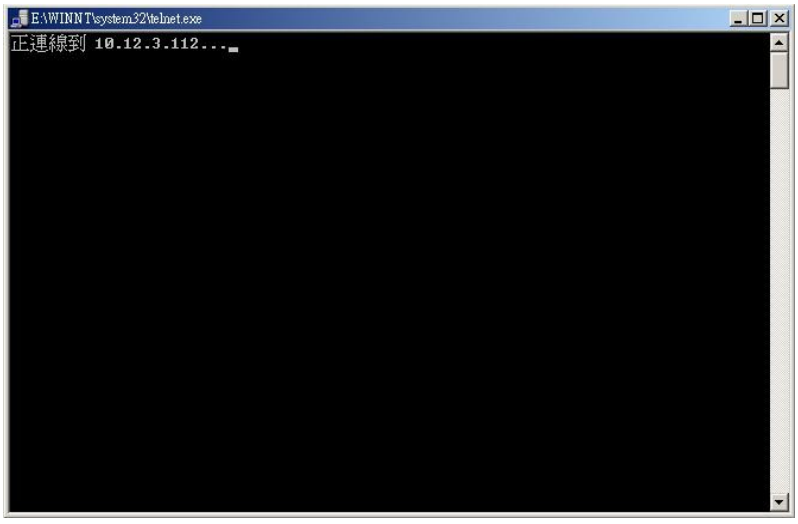
| Field | Description |
|---|---|
| **NE** | |
| Location | Use this combo-box to select location. |
| NE | Use this combo-box to select NE. |
| IP | This indicates the IP address of the selected NE. |
| **Ping Parameters** | |
| Ping Count | Use this field to select the number of ICMP packets to be launched by the LCT.<br>Valid value is 1 ~ 99. |
| Wait (second) | Use this field to select the waiting time of ICMP packet.<br>Valid value is 1 ~ 30. |
| Data Size (byte) | Use this field to select the payload size of ICMP packet.<br>Valid value is 32 ~ 9996. |
| Max Hops | Use this field to select the maximum number of hops of tracing.<br>Valid value is 1 ~ 255. |
| ToS | Use this field to select the ToS (Type of Serveice) of ICMP packet.<br>Valid value is 0 ~ 255. |
| Do not fragment | Check this check box to set the “Do not fragment”-bit of ICMP packet. |
| **Function Button** | |
| Trace | Start Traceroute by sending ICMP packets. |
| Clear | Clear all the result above. |
| Close | Exit the Trace Route dialog. |

## Telnet

The AMS LCT allows operator to launch a Telnet window in the LCT environment.

Click Diagnosis → NE Connection →Telnet on **Main Menu** to launch the Telnet window as shown in Figure 11-137.

**Figure 11-137 Telnet Pop-up Window**



## Check SNMP Connection

Use the ‘SNMP Connection’ to check whether the connection between NE and AMS LCT host is normal or not.

Click Diagnosis → NE Connection → SNMP Connection on **Main Menu** to open the **SNMP Connection** Dialog as shown in Figure 11-138 and Table 11-97 depicts the related parameters.

**Figure 11-138 Check NE SNMP Connection Dialog**

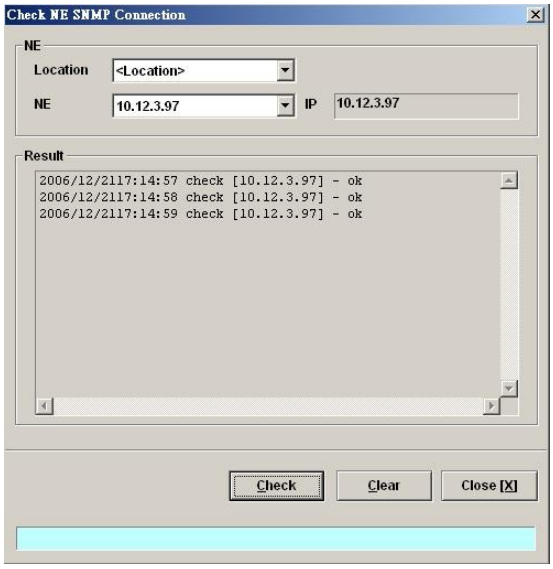


**Table 11-97 Check NE SNMP Connection Dialog Description**

| Field | Description |
|---|---|
| **NE** | |
| Location | Use this combo-box to select location. |
| NE | Use this combo-box to select NE. |
| IP | This indicates the IP address of the selected NE. |
| **Function Button** | |
| Check | Start checking the SNMP connection. |
| Clear | Clear all the result above. |
| Close | Exit the Check NE SNMP Connection Dialog. |

# Chapter 12General System Management

This chapter details the various operations that need to be carried out to setup and start services.

- AMS LCT Options

## AMS LCT Options

### Configuring the Alarm Warning Options

The AMS LCT supports to notify the operators whenever there is an alarm sent from the NE. The operator is allowed to control the AMS LCT to notify by flashing the alarm on the multimedia view (see Figure 3-2) and/or playing a audio file.

Click System → Option on **Main Menu** to open the **Client Options** Dialog as shown in Figure 12-139. Table 12-98 depicts the related parameters.

**Figure 12-139 Client Options Dialog – Alarm Warning**

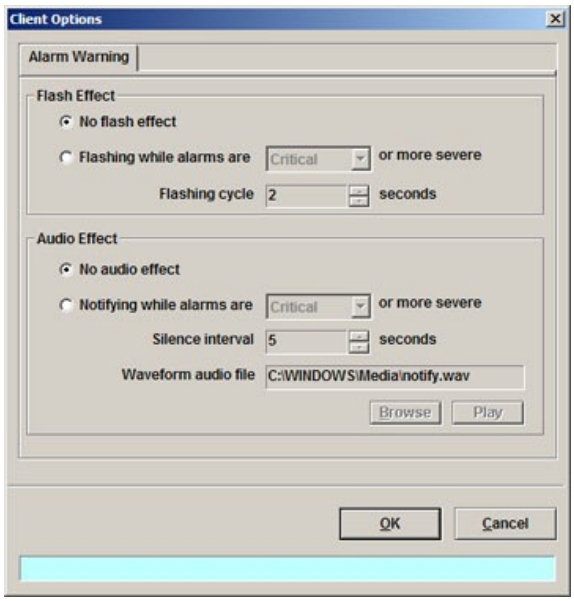



**Table 12-98 Client Options Dialog – Alarm Warning Description**

| Field | Description |
|---|---|
| **Flash Effect** | |
| No flash effect | This option button disables the alarm warning flash effect. |
| Flashing condition and cycle | This option button enables the alarm warning flash effect. You can control the alarm severity and flashing cycles. |
| **Audio Effect** | |
| No audio effect | This option button disables the audio effect. |
| Notifying condition and interval | This option button enables the audio effect. You can control the alarm severity and the silence interval between two audio notifications. |
| Waveform audio file | This specifies the sound file of audio effect. Click 'Browse' button to select file and click 'Play' to test. |

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# Chapter 13Administrating and Maintenance

AMS supports the NE firmware and NE inventory management as follows.

This chapter contains the following sections:

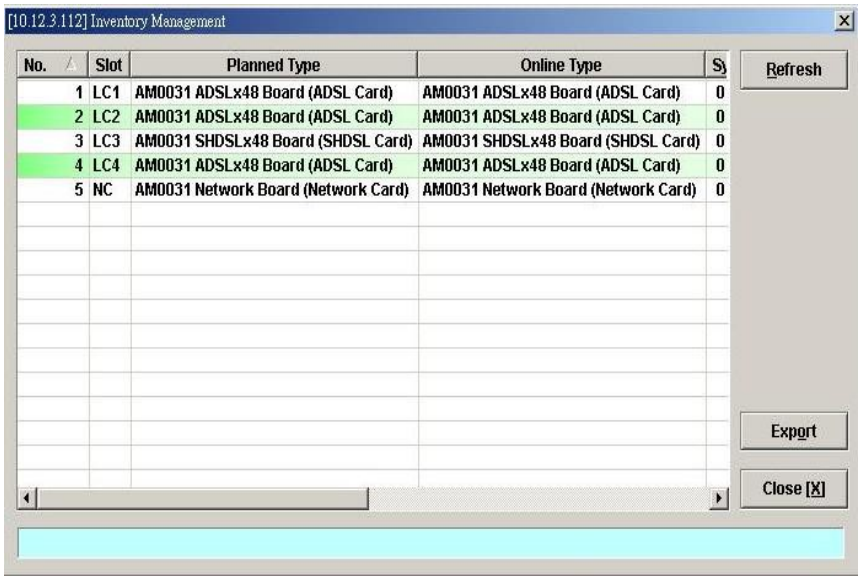
- NE Inventory Information
- NE Configuration Backup and Restore
- NE Firmware Up
- SHDSL LC Firmware Up
- NE Boot Partition
- Reset the Unit

## NE Inventory Information

Follow the subsequent procedure to display the inventory information of NE software/ hardware version, card serial number, card type and so on

**Step 1** Click Diagnosis → Inventory on **Main Menu** to open the **Inventory Information** List as shown in Figure 13-140. xxxxxx depicts the related parameters.

**Figure 13-140 Inventory Information List**




## NE Configuration Backup and Restore

Follow the subsequent procedure to backup and restore the configuration data file of NE on local LCT PC through FTP.

**Step 1** Click Configuration → NE Management → Backup & Restore on **Main Menu** to open the **NE Configuration Backup & Restore** Dialog as shown in Figure 13-141 and Table 13-99 depicts the related parameters.

**Step 2** To backup the configuration file, please input a valid administrative level username/password and give your backup file a file name, then click '**Backup**' button.

**Step 3** To restore the configuration file, click '**Browse**' and choose the target file from the backup file directory, then click '**Restore**' button.

**Step 4** After restoring the configuration data, it is noted that the NE needs to be rebooted to make the configuration data take effect.

You can also select and highlight the NE from the **Network Tree View** to progress the NE configuration Backup & Restore by right click of pop-up menu, NE Management → NE Backup & Restore.

**Figure 13-141 NE Configuration Backup & Restore File List Dialog**

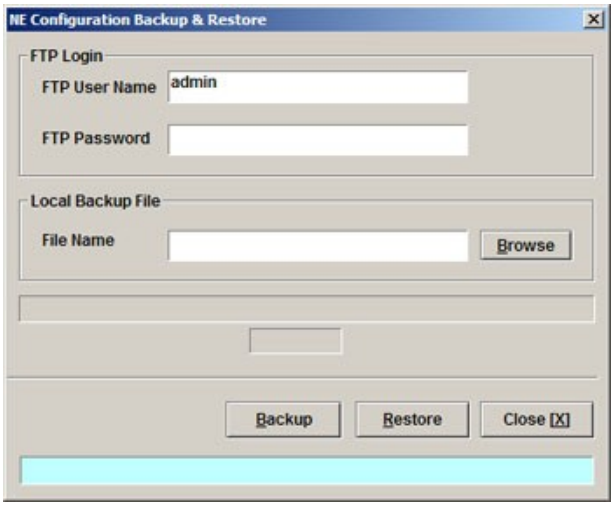



**Table 13-99 NE Configuration Backup & Restore File List Dialog Description**

| Field | Description |
|---|---|
| **FTP Login** | |
| FTP User Name | Fill the administrative level username of FTP. |
| FTP Password | Fill the comparative password of the administrative level username. |
| **Local Backup File** | |
| Browse | Click this button to open the file choice window. |
| **Function Button** | |
| Backup | Start to backup the configuration data file of NE by saving it as the specified file on the local LCT PC through FTP. |
| Restore | Start to restore the configuration of NE by sending the specified NE configuration file to NE from the the local LCT PC via FTP. |
| Close | Exit the Configuration Backup & Restore Dialog. |

## NE Firmware Upgrade

AMS LCT provides the "NE Firmware Upgrade" dialog to upgrade the NC/ADSL LC firmware image to NE through FTP.

Follow the subsequent procedure to upgrade the NC/ADSL LC firmware image. It is noted that the NE needs to be rebooted to execute the new image.

**Step 1** Click Configuration → NE Management → Firmware Upgrade on **Main Menu** to open

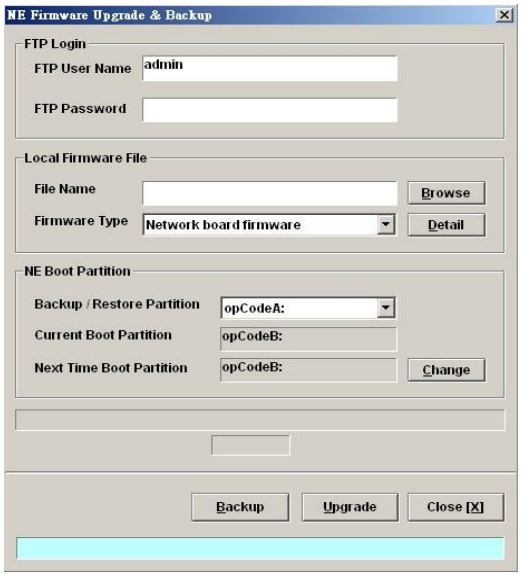
the **NE Firmware Upgrade** Dialog as shown in Figure 13-142. depicts the related parameters.

**Step 2** Click '**Browse**' button to choose the suitable code file from host directory.

**Step 3** Click '**Upgrade**' button to process.

**Step 4** Reset the NC or ADSL LC to execute the upgraded firmware.

**Figure 13-142 NE Firmware Upgrade Dialog**




Make sure the source image file that you select is accordant to the NE model, else the NE may not run well with the upgraded firmware image after rebooting.

**Table 13-100 NE Firmware Upgrade Dialog Description**

| Field | Description |
|---|---|
| **FTP Login** | |
| FTP User Name | This indicates the user name of NE with administrator right. |
| FTP Password | This indicates the password of FTP to access NE with administrator right. |
| **Local Firmware File** | |
| File Name | Click the 'Browse' button to select a file of NC firmware or an ADSL LC firmware from your local host. |
| Firmware Type | This indicates the firmware type for upgrade. Click 'Detail' button to display the information of selected file. |
| **NE Boot Partition (also refer to NE Boot Partition)** | |
| Backup / Restore Partition | This specifies the boot partition where the upgraded file to be placed to or backup from. |
| Current Boot Partition | This specifies the current boot partition. |
| Next Time Boot Partition | This indicates the partition of NE for next booting. Click 'Change' button to change boot partition. |
| **Function Button** | |
| Backup | Start to backup the NC/ADSL LC firmware image of NE by saving it as the specified file on the local LCT PC through FTP. |

| Field | Description |
|---|---|
| Upgrade | Start to upgrade the NC/ADSL LC firmware image of NE by sending the specified file on the local LCT PC through FTP. |
| Close | Exit the Configuration Backup & Restore Dialog. |

## SHDSL LC Firmware Upgrade

AMS LCT provides the "NE SHDSL Firmware Upgrade" dialog to upgrade the SHDSL LC firmware image to NE through FTP.

Follow the subsequent procedure to upgrade the SHDSL LC firmware image. It is noted that the NE needs to be rebooted to execute the new image.

AMS LCT provides the "NE SHDSL Firmware Upgrade" dialog to upload the firmware image to NC through FTP and then upgrade the new image from NC to SHDSL card. Follow the subsequent procedures to upgrade your SHDSL line card if necessary.

**Step 1** Click Configuration → NE Management → NE SHDSL Firmware Upgrade on **Main Menu** to open the **NE SHDSL Firmware Upgrade** Dialog as shown in Figure 13-143. Table 13-101 depicts the related parameters.

**Step 2** Click '**Browse**' button to choose the suitable code file from host directory.

**Step 3** Click '**FTP**' button to upload new firmware to NC card.

**Step 4** Mark the SHDSL LC which you want to upgrade firmware, and then click "**Upgrade**" to proceed.

**Step 5** Reset the SHDSL LC to execute the upgraded firmware.

In comparison with the NC/ADSL LC firmware upgrade procedure, you need take one more step (**Step 4**) to upgrade the SHDSL firmware.

It is noted that the SHDSL LC must be reset at the completion of **Step 4**.

**Figure 13-143 NE SHDSL Firmware Upgrade Dialog**

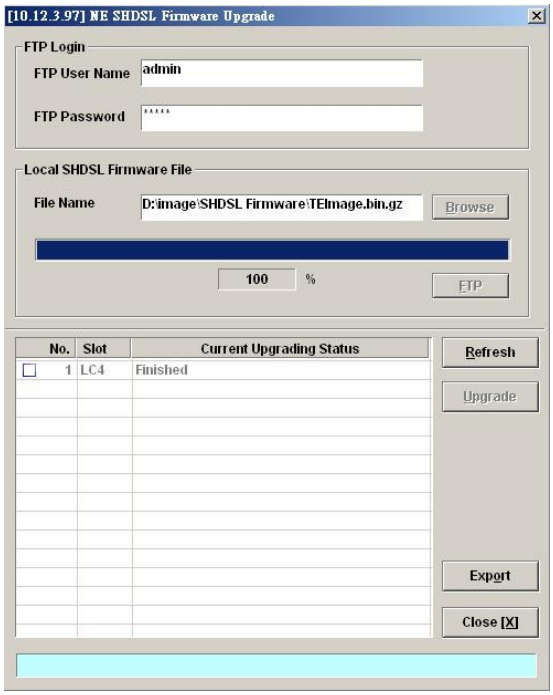



**Table 13-101 NE SHDSL Firmware Upgrade Dialog Description**

| Field | Description |
|---|---|
| **FTP Login** | |
| FTP User Name | This indicates the user name of NE with administrator right. |
| FTP Password | This indicates the password of NE with administrator right. |
| **Local SHDSL Firmware File** | |
| File Name | Click the 'Browse' button to select a file of SHDSL firmware from your local host. |
| FTP | Click this button to upload SHDSL firmware to the NC. |
| Current Upgrading Status | This indicates the status of SHDSL line card.<br>Upgrading is available only when the status is "initial". |
| Upgrade | Click this button to upgrade the new image from NC to SHDSL LC. |
| Refresh | Click this button to refresh the status during firmware updating. |
| Export | Click this button to save the contents of **NE SHDSL Firmware Upgrade** to the local LCT PC. |
| Close | Exit the **NE SHDSL Firmware Upgrade** Dialog. |

# NE Boot Partition

As the NE needs to be rebooted to execute the new image running on NC, follow the subsequent procedure to select boot partition when the NC reboots.

**Step 1** Click Configuration → NE Management → Boot Partition on **Main Menu** to open the **NE Firmware Boot Partition** Dialog as shown in Figure 13-144 .Table 13-102 depicts the related parameters.

**Step 2** Select the boot partition form 'Next Time Boot Partition' field to decide the booting image the NE will run whenever it is rebooted.

**Figure 13-144 NE Firmware Boot Partition Dialog**

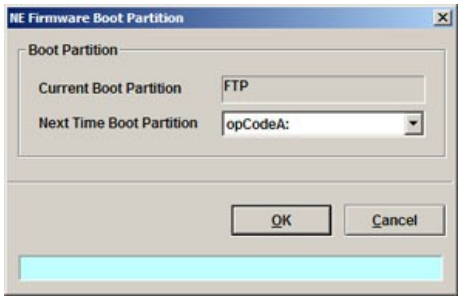



**Table 13-102 NE Firmware Boot Partition Dialog Description**

| Field | Description |
|---|---|
| Current Boot Partition | This indicates the current boot partition. |
| Next Time Boot Partition | Use this combo-box to select the next boot partition. |
| **Function Button** | |
| OK | Commit the configuration. |
| Cancel | Cancel the setting. |

## Reset the Unit

Select the NC/LC or Port object, use right mouse button to bring out the menu, select the ‘Reset’ option to launch the **Reset the Unit Dialog** as shown in Figure 13-145.

**Figure 13-145 Reset the Unit Dialog**


.

# Appendix AAbbreviations and Acronyms

The abbreviations and acronyms used in this document.

**Table A-1 Abbreviations and Acronyms Table**

| Abbreviations | Full Name |
|---|---|
| AAL | ATM Adaptation Layer |
| ADSL | Asymmetric Digital Subscriber line |
| AIS | Alarm Indication Signal |
| ATM | Asynchronous Transfer Mode |
| ATU-C | ADSL Transceiver Unit at the central office end |
| ATU-R | ADSL Transceiver Unit at the remote end |
| CBR | Constant Bit Rate |
| CV | Coding Violation |
| DSLAM | Digital Subscriber line Access Multiplexer |
| ES | Error Seconds |
| EOA | Ethernet over ATM |
| GE | Gigabit Ethernet |
| IP | Internet Protocol |
| LAN | Local Area Network |
| LOF | Loss of Frame |
| LOS | Loss of Signal |
| LPR | Loss of Power |
| OAM | Operation, Administration, and Maintenance |
| PADI | PPPoE active discovery initiation |
| PADR | PPPoE active discovery request |
| PADT | PPPoE active discovery terminate |
| PCR | Peak Cell Rate |
| PSD | Power Spectral Density |
| PVC | Permanent Virtual Channel |
| rtVBR | Real time Variable Bit Rate |
| SCR | Sustainable Cell Rate |
| SNR | Signal-to Noise Ratio |
| SNMP | Simple Network Management Protocol |
| UAS | Unavailable Seconds |
| UBR | Unspecified Bit Rate |
| VC | Virtual Channel |
| VCI | Virtual Channel Identify |
| VCL | Virtual Channel Link |
| VDSL | Very high-speed Digital Subscriber line |
| VLAN | Virtual Local Area Network |
| VP | Virtual Path |
| VPI | Virtual Path Identifier |
| VTU-O | VDSL Transmission Unit at the Optical network interface |
| VTU-R | VDSL Transmission Unit at the remote end |
| WAN | Wide Area Network |
| xDSL | ADSL/VDSL |

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# Appendix BAlarm Definition

Describe all the alarm in the AMS.

**Table B-2 Alarm Definition**

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|---|---|---|---|---|
| All | noEntity | EMPTY | No | Neither plan type nor on-line type configured |
| **DAS4192** | CPU Module | MISSING | Major | CPU Module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | TCA_DHCP_BC | Warning | DHCP broadcast request rate threshold-crossing alert |
| | ADSL Module | MISSING | Major | ADSL module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | ADSL line card is not operable |
| | Power Module | MISSING | Major | Power module is off-line |
| | | NOT_OPERABLE | Major | Power card is not operable |
| | Fan Module | MISSING | Major | Fan module is off-line |
| | | FAN1_SPEED | Major | Fan1 speed is below the threshold |
| | | FAN2_SPEED | Major | Fan2 speed is below the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | ADSL Port | ES_NE_15_MIN | Minor | 15 min near end ES is over threshold |
| | | SES_NE_15_MIN | Minor | 15 min near end SES is over threshold |
| | | UAS_NE_15_MIN | Minor | 15 min near end UAS is over threshold |
| | | ES_FE_15_MIN | Minor | 15 min far end ES is over threshold |
| | | SES_FE_15_MIN | Minor | 15 min far end SES is over threshold |
| | | UAS_FE_15_MIN | Minor | 15 min far end UAS is over threshold |
| | | ES_NE_1_DAY | Minor | 1 day near end ES is over threshold |
| | | SES_NE_1_DAY | Minor | 1 day near end SES is over threshold |
| | | UAS_NE_1_DAY | Minor | 1 day near end UAS is over threshold |
| | | ES_FE_1_DAY | Minor | 1 day far end ES is over threshold |
| | | SES_FE_1_DAY | Minor | 1 day far end SES is over threshold |
| | | UAS_FE_1_DAY | Minor | 1 day far end UAS is over threshold |
| | | LOS | Minor | Loss of signal |
| | | LOF | Minor | Loss of frame |
| | | LPWR | Warning | CPE loss of power |
| | | GEN_LINE_INIT_FAIL | Minor | Generic line initialization failure |
| | | CONFIG_ERROR | Minor | Line initialization failure - configuration error |
| | | HIGH_BIT_RATE | Minor | Line initialization failure - high bit rate |
| | | COMM_PROBLEM | Minor | Line initialization failure - communication problem |
| | | NO_PEER_DETECTED | Minor | No peer detected |
| | | TRAINING | Warning | Port is under training |
| | | NO_CONFIG | Information | Port is not configured |
| | | PS_L2_MANUAL | Information | ADSL2/ADSL2+ Power State transfers to L2 by manual mode |

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|---|---|---|---|---|
| **DAS4192** | ADSL Port | PS_L2_AUTO | Information | ADSL2/ADSL2+ Power State transfers to L2 by automatic mode |
| | | PS_L3_CO | Information | ADSL2/ADSL2+ Power State transfers to L3 by CO side |
| | | PS_L3_CPE | Information | ADSL2/ADSL2+ Power State transfers to L3 by CPE side |
| | | ILLEGAL_IP | Warning | Packets with illegal IP addresses have been dropped |
| | | ILLEGAL_MAC | Warning | duplicated MAC addresses from different line ports are made out |
| | | DISABLED | Information | The port is disabled |
| | GE Port | MISSING | Major | GE Port is off-line |
| | | NOT_OPERABLE | Major | GE Port is not operable |
| | | STP_LEARN | Information | GE port is transited to STP-learning state |
| | | STP_BLOCK | Information | GE port is transited to STP-blocking state |
| | | DISABLED | Information | GE port is disabled |
| | Alarm Relay Module | MISSING | Major | Alarm relay module is off-line |
| | Alarm Relay Port | MISSING | Major | Alarm relay port is off-line |
| | | RELAY_ABNORMAL | Major | The alarm relay port is under abnormal status |
| | | DISABLED | Information | The alarm repay port is disabled |
| | SHDSL Module | MISSING | Major | SHDSL module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | Line card is not operable |
| | SHDSL Port | TCA_ES_NE_15_MIN | Minor | 15-min near end ES is over the threshold |
| | | TCA_SES_NE_15_MIN | Minor | 15-min near end SES is over the threshold |
| | | TCA_UAS_NE_15_MIN | Minor | 15-min near end UAS is over the threshold |
| | | TCA_CRC_NE_15MIN | Minor | 15-min near end CRC is over the threshold |
| | | TCA_LOSW_NE_15MIN | Minor | 15-min near end LOSW is over the threshold |
| | | TCA_SNR_NE | Minor | Near end SNR margin is over the threshold |
| | | TCA_ATTN_NE | Minor | Near end loop attenuation is over the threshold |
| | | OPI | Information | Operation state change indication |
| | | LOS | Minor | Loss of signal (FOH lost bit) |
| | | SEGA | Minor | Segment anomaly - CRC anomaly (FOH sega bit) |
| | | LPR | Minor | Loss of power - power status (FOH ps bit) |
| | | SEGD | Minor | Segment defect - LOSW defect (FOH segd bit) |
| | | PBO_NE | Minor | Near end enhanced power back off |
| | | DEVFAULT_NE | Minor | Near end device fault - Diagnostic or self-test fault |
| | | DCCONT_NE | Minor | Near end DC continuity fault - interfere with span powering |
| | | LOSW_NE | Minor | Near end LOSW failure |
| | | INI_CFG_NE | Minor | Near end indicates Far end not able to support requested configuration |
| | | INI_PROTOCOL_NE | Minor | Near end indicates incompatible protocol used by Far end |
| | | NOPEER | Minor | No peer detected |
| | | PBO_FE | Minor | Far end enhanced power back off |
| | | DEVFAULT_FE | Minor | Far end device fault - Diagnostic or self-test fault |
| | | DCCONT_FE | Minor | Far end DC continuity fault - interfere with span powering |

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|---|---|---|---|---|
| **DAS4192** | SHDSL Port | LOSW_FE | Minor | Far end LOSW failure |
| | | INI_CFG_FE | Minor | Far end indicates Near end not able to support requested configuration |
| | | INI_PROTOCOL_FE | Minor | Far end indicates incompatible protocol used by Near end |
| | | DISABLED | Information | The port is disabled |
| **DAS4672** | CPU Module | MISSING | Major | CPU Module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | CPU card is not operable |
| | | TCA_DHCP_BC | Warning | DHCP broadcast request rate threshold-crossing alert |
| | | STANDBY | Information | Running in standby mode |
| | | HW_VERSION | Major | Hardware version is inconsistent |
| | | SWAP | Information | Standby CPU module has been changed as active. |
| | ADSL Module | MISSING | Major | ADSL module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | Line card is not operable |
| | Fan Module | MISSING | Major | Fan module is off-line |
| | | FAN1_SPEED | Major | Fan1 speed is below the threshold |
| | | FAN2_SPEED | Major | Fan2 speed is below the threshold |
| | | FAN3_SPEED | Major | Fan3 speed is below the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | ADSL Port | ES_NE_15_MIN | Minor | 15 min near end ES is over the threshold |
| | | SES_NE_15_MIN | Minor | 15 min near end SES is over the threshold |
| | | UAS_NE_15_MIN | Minor | 15 min near end UAS is over the threshold |
| | | ES_FE_15_MIN | Minor | 15 min far end ES is over the threshold |
| | | SES_FE_15_MIN | Minor | 15 min far end SES is over the threshold |
| | | UAS_FE_15_MIN | Minor | 15 min far end UAS is over the threshold |
| | | ES_NE_1_DAY | Minor | 1 day near end ES is over the threshold |
| | | SES_NE_1_DAY | Minor | 1 day near end SES is over the threshold |
| | | UAS_NE_1_DAY | Minor | 1 day near end UAS is over the threshold |
| | | ES_FE_1_DAY | Minor | 1 day far end ES is over the threshold |
| | | SES_FE_1_DAY | Minor | 1 day far end SES is over the threshold |
| | | UAS_FE_1_DAY | Minor | 1 day far end UAS is over the threshold |
| | | LOS | Minor | Loss of signal |
| | | LOF | Minor | Loss of frame |
| | | LPWR | Warning | CPE Loss of power |
| | | GEN_LINE_INIT_FAIL | Minor | Generic line initialization failure |
| | | CONFIG_ERROR | Minor | Line initialization failure - configuration error |
| | | HIGH_BIT_RATE | Minor | Line initialization failure - high bit rate |
| | | COMM_PROBLEM | Minor | Line initialization failure - communication problem |
| | | NO_PEER_DETECTED | Minor | No peer detected |
| | | TRAINING | Warning | Port is under training |
| | | NO_CONFIG | Information | Port is not configured |
| | ADSL Port | PS_L2_MANUAL | Information | ADSL2/ADSL2+ Power State transfers to L2 by manual mode. |
| | | PS_L2_AUTO | Information | ADSL2/ADSL2+ Power State transfers to L2 by automatic mode. |
| | | PS_L3_CO | Information | ADSL2/ADSL2+ Power State transfers to L3 by CO side |
| | | PS_L3_CPE | Information | ADSL2/ADSL2+ Power State transfers to L3 by CPE side |
| | | ILLEGAL_IP | Warning | Packets with illegal IP addresses have been dropped |
| | | ILLEGAL_MAC | Warning | duplicated MAC addresses from different line ports are made out |
| | | DISABLED | Information | The port is disabled |
| | GE Port | MISSING | Major | GE Port is off-line |

| NE Model | Module Name | Alarm Name | Default Severity | Alarm Description |
|---|---|---|---|---|
| **DAS4672** | GE Port | NOT_OPERABLE | Major | GE Port is not operable |
| | | STP_LEARN | Information | GE port is transited to STP-learnning state |
| | | STP_BLOCK | Information | GE port is transited to STP-blocking state |
| | | DISABLED | Information | GE port is disabled |
| | Alarm Relay Module | MISSING | Major | Alarm relay module is off-line |
| | Alarm Relay Port | MISSING | Major | Alarm relay port is off-line |
| | | RELAY_ABNORMAL | Major | The alarm relay port is under abnormal status |
| | | DISABLED | Information | The port is disabled |
| | SHDSL Module | MISSING | Major | SHDSL module is off-line |
| | | TEMP | Major | Temperature is over the threshold |
| | | VOL | Major | Voltage is below the threshold |
| | | MISMATCH | Major | Planned type and online type are mismatched |
| | | NOT_OPERABLE | Major | Line card is not operable |
| | SHDSL Port | ES_NE_15_MIN | Minor | 15-min near end ES is over the threshold |
| | | SES_NE_15_MIN | Minor | 15-min near end SES is over the threshold |
| | | UAS_NE_15_MIN | Minor | 15-min near end UAS is over the threshold |
| | | TCA_CRC_NE_15MIN | Minor | 15-min near end CRC is over the threshold |
| | | TCA_LOSW_NE_15MIN | Minor | 15-min near end LOSW is over the threshold |
| | | TCA_SNR_NE | Minor | Near end SNR margin is over the threshold |
| | | TCA_ATTN_NE | Minor | Near end loop attenuation is over the threshold |
| | | OPI | Minor | Operation state change indication |
| | | LOS | Minor | Loss of signal (FOH lost bit) |
| | | SEGA | Minor | Segment anomaly - CRC anomaly (FOH sega bit) |
| | | LPR | Minor | Loss of power - power status (FOH ps bit) |
| | | SEGD | Minor | Segment defect - LOSW defect (FOH segd bit) |
| | | PBO_NE | Minor | Near end enhanced power back off |
| | | DEVFAULT_NE | Minor | Near end device fault - Diagnostic or self-test fault |
| | | DCCONT_NE | Minor | Near end DC continuity fault - interfere with span powering |
| | | LOSW_NE | Minor | Near end LOSW failure |
| | | INI_CFG_NE | Minor | Near end indicates Far end not able to support requested configuration |
| | | INI_PROTOCOL_NE | Minor | Near end indicates incompatible protocol used by Far end |
| | | NOPEER | Minor | No peer detected |
| | | PBO_FE | Minor | Far end enhanced power back off |
| | | DEVFAULT_FE | Minor | Far end device fault - Diagnostic or self-test fault |
| | | DCCONT_FE | Minor | Far end DC continuity fault - interfere with span powering |
| | | LOSW_FE | Minor | Far end LOSW failure |
| | | INI_CFG_FE | Minor | Far end indicates Near end not able to support requested configuration |
| | | INI_PROTOCOL_FE | Minor | Far end indicates incompatible protocol used by Near end |
| | | DISABLED | Information | The port is disabled |
| | Chassis | PWR1_FAIL | Warning | Power1 failed |
| | | PWR2_FAIL | Warning | Power2 failed |
| | | PWR1_NOT_OPERABLE | Major | Power1 is not operable |
| | | PWR2_NOT_OPERABLE | Major | Power2 is not operable |

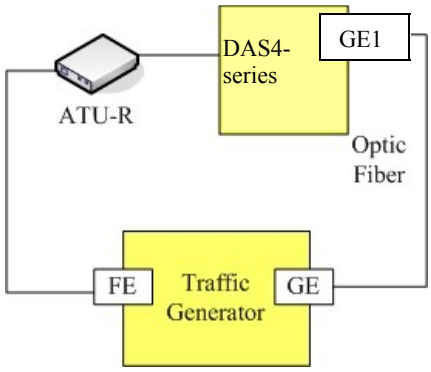
# Appendix CQuick Configuration Guide for LCT

This appendix contains the following “How to” for the operator to be familiar with the DAS4-series product.

HowTo 1. How to configure to provide a unicast/broadcast and bridged data service on the DAS4-series series IP-DSALM
HowTo 2. How to configure to provide a multicast and bridged data service on the DAS4-series series IP-DSALM
HowTo 3. How to configure to provide a Trunk CoS Mapping on the DAS4-series series IP-DSALM
HowTo 4. How to backup and restore the NE Configuration

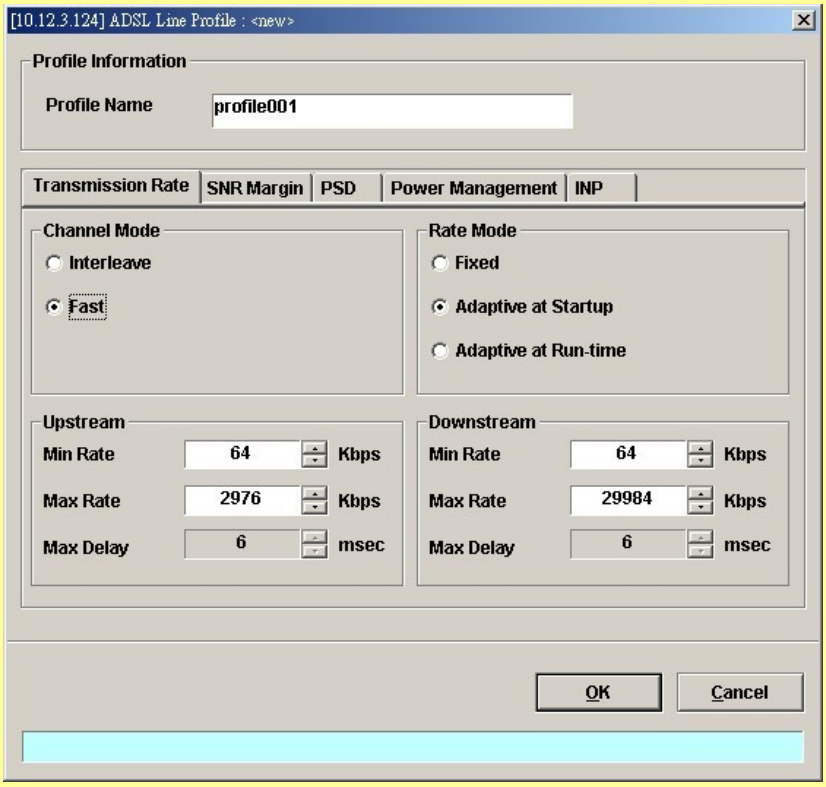
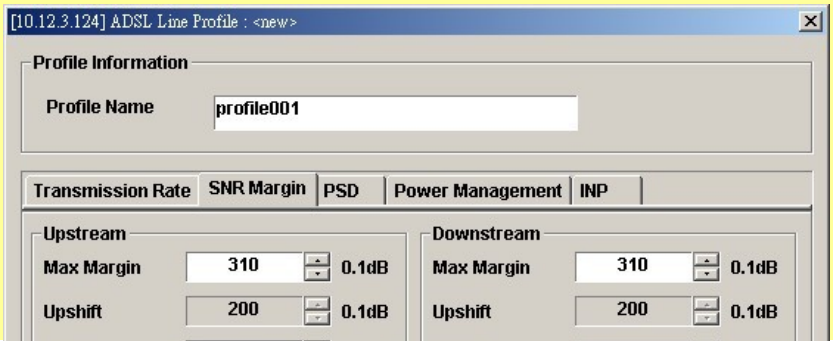
## HowTo 1. How to configure to provide a unicast/broadcast and bridged data service on the DAS4-series series IP-DSALM

**Environment**

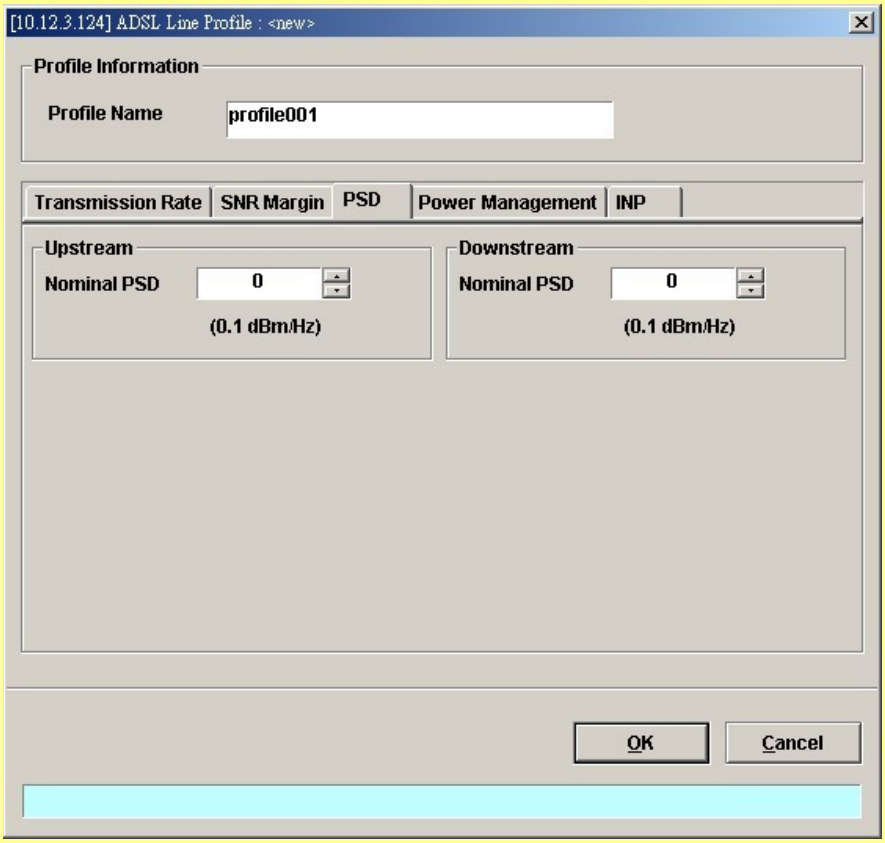



**Set Up via AMS LCT**

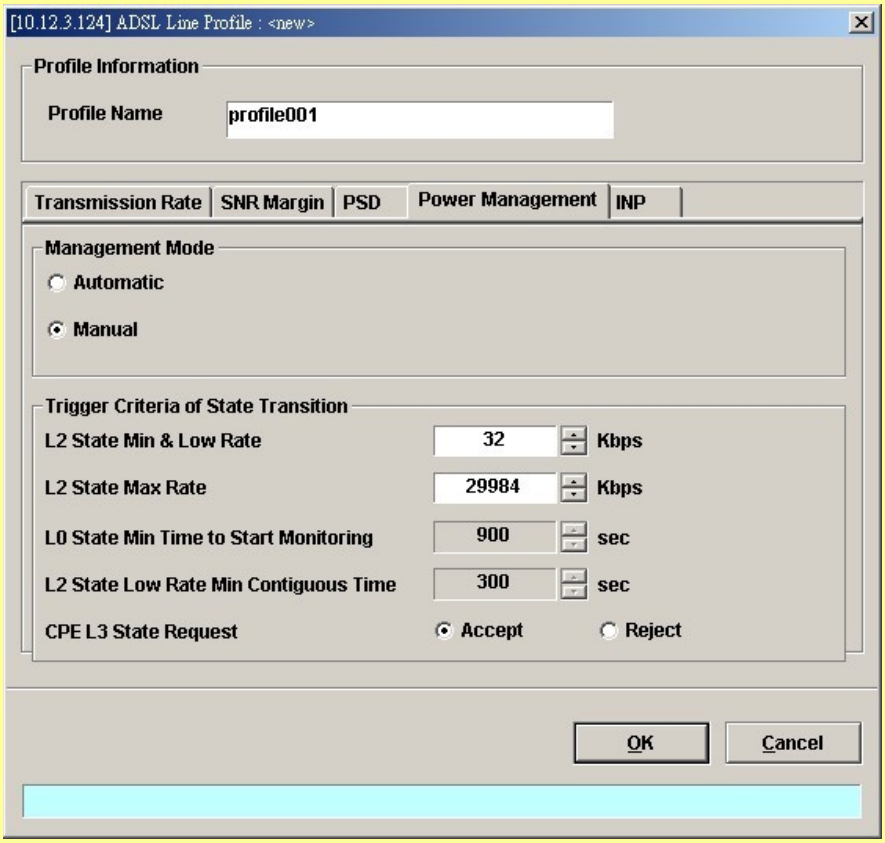
| Step | Procedure and example of parameter value (Procedure with blue background, Example with yellow background) |
|---|---|

| | |
|---|---|
| Step 3 | Add ADSL line profile to system.. |
| | Follow the procedures in Section “Configuring the xDSL Profile” to set the profiles by filling the indicated dialogs as follows<br>**Line Profile** (Please refer the corresponding OID definition in Table C-103)<br>2. Figure 5-4 Add ADSL Line Profile– Transmission Rate Dialog<br>3. Figure 5-5 Add ADSL Line Profile– SNR Margin Dialog<br>4. Figure 5-6 Add ADSL Line Profile– PSD Dialog<br>5. Figure 5-7 Add ADSL Line Profile– Power Management Dialog<br>6. Figure 5-8 Add ADSL Line Profile– INP Dialog<br>**PM Threshold Profile (optional)** (Please refer the corresponding OID definition in Table C-104 )<br>2. Figure 5-10 Add ADSL PM Threshold Profile Dialog<br>**Traffic Policing Profile** (Please refer the corresponding OID definition in Table C-105 )<br>1. Figure 5-12 Add Traffic Policing Profile Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>**Line Profile**<br>1. Figure 5-4 Add ADSL Line Profile– Transmission Rate Dialog<br>  <br><br>2. Figure 5-5 Add ADSL Line Profile– SNR Margin Dialog<br>  <br> |

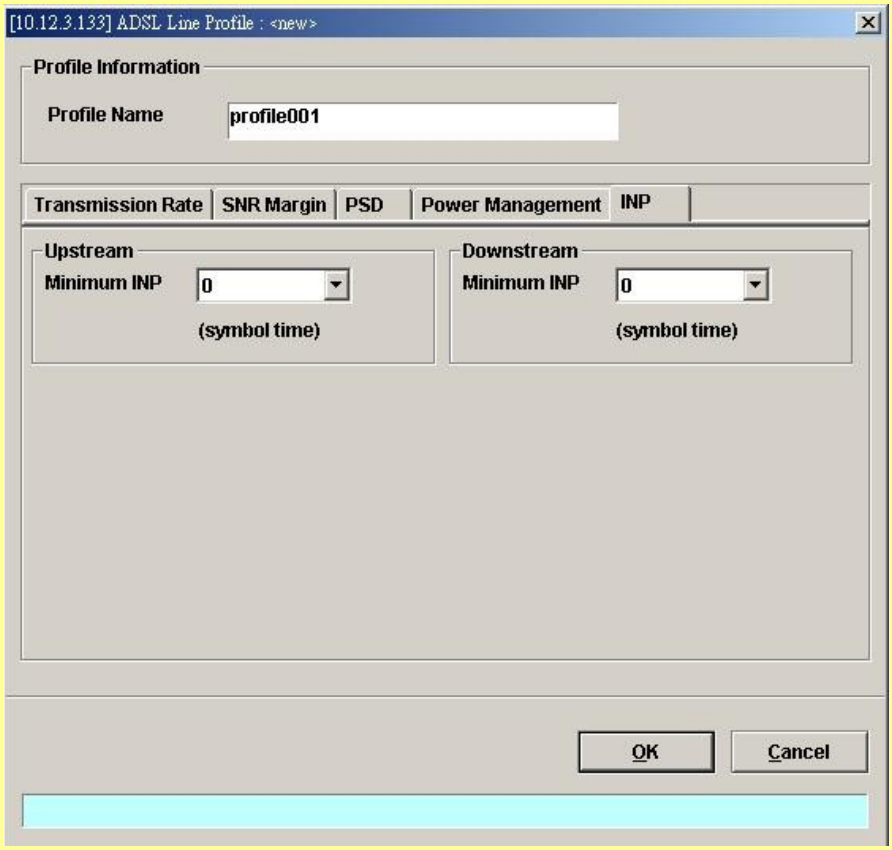
3. Figure 5-6 Add ADSL Line Profile– PSD Dialog




4. Figure 5-7 Add ADSL Line Profile– Power Management Dialog

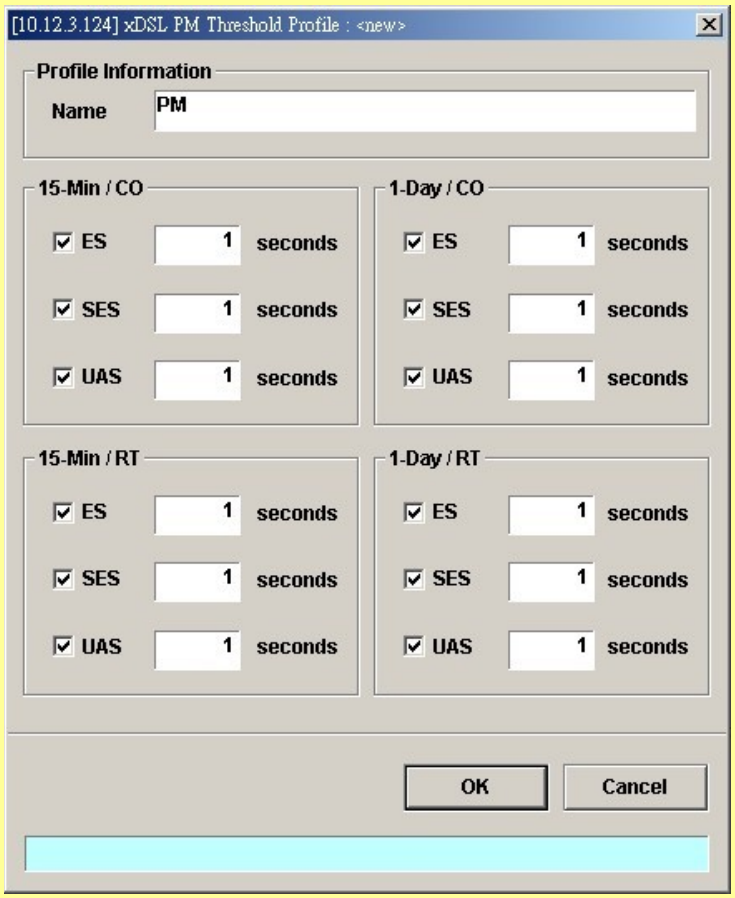


5. Figure 5-8 Add ADSL Line Profile– INP Dialog



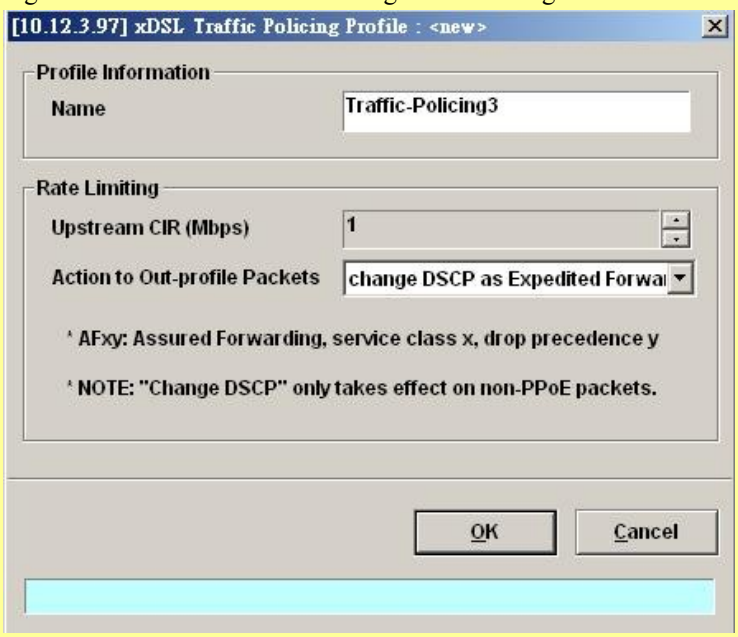
**PM Threshold Profile (optional)**

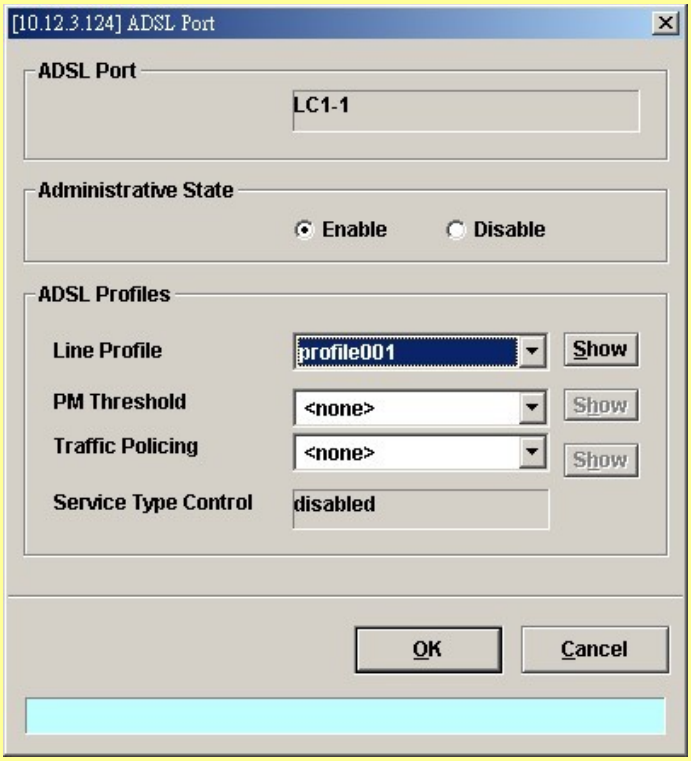
1. Figure 5-10 Add ADSL PM Threshold Profile Dialog

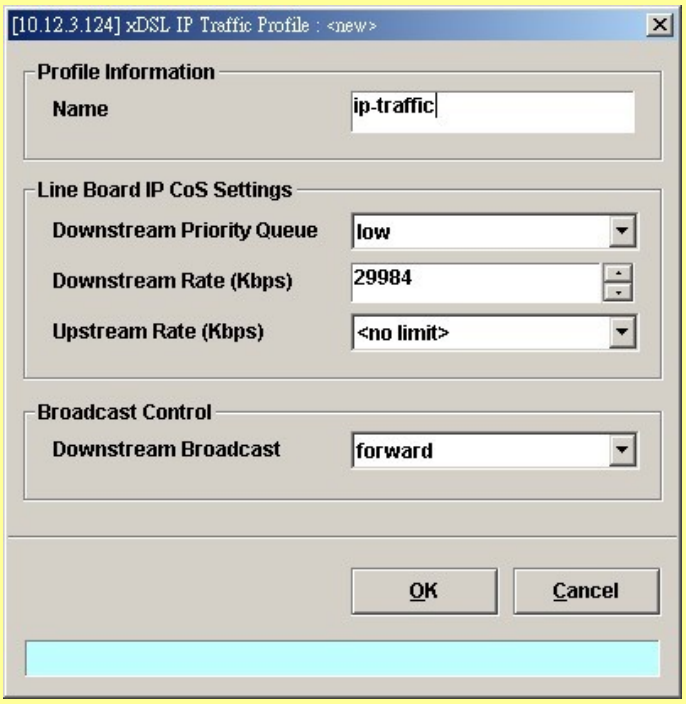


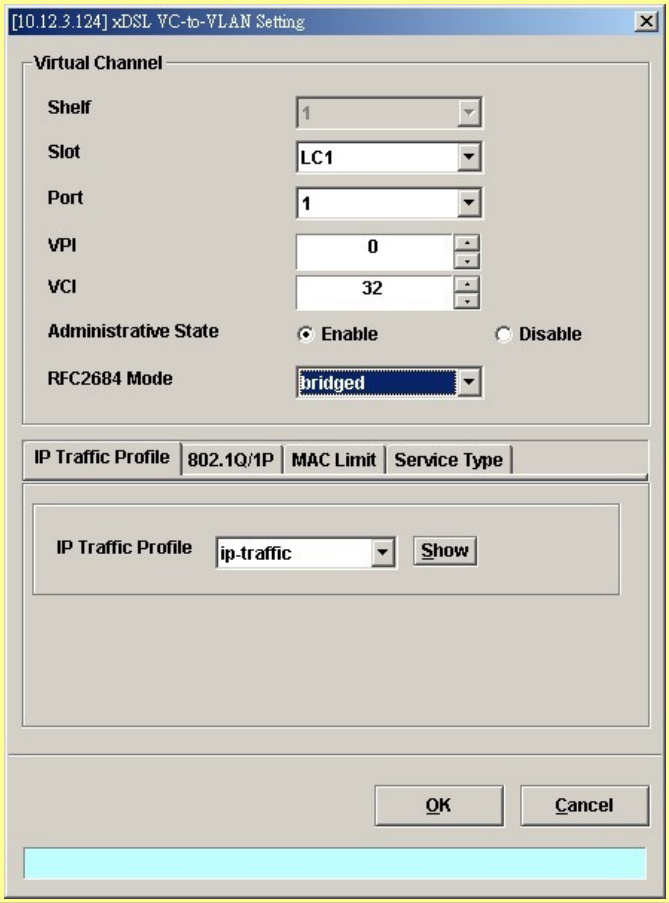

**Traffic Policing Profile**

1. Figure 5-12 Add Traffic Policing Profile Dialog

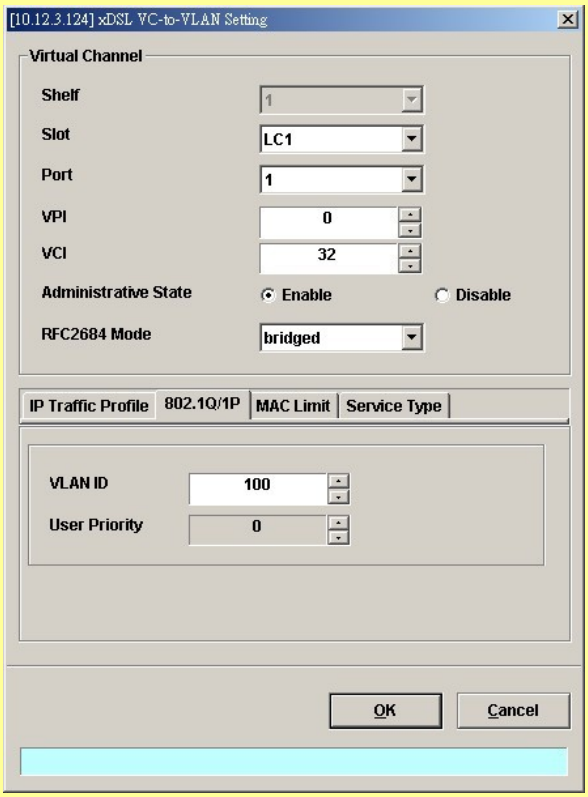


| | |
|---|---|
| Step 2 | Assign ADSL line profile to a ADSL subscriber and enable it. |
| | Follow the procedures in Section "xDSL Line Interface Management" to modify the configuration of target ADSL port by filling the following dialog.<br>1. Figure 6-2 ADSL Port Modification Dialog (Please refer the corresponding OID definition in Table C-106) |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 6-2 ADSL Port Modification Dialog<br>  |

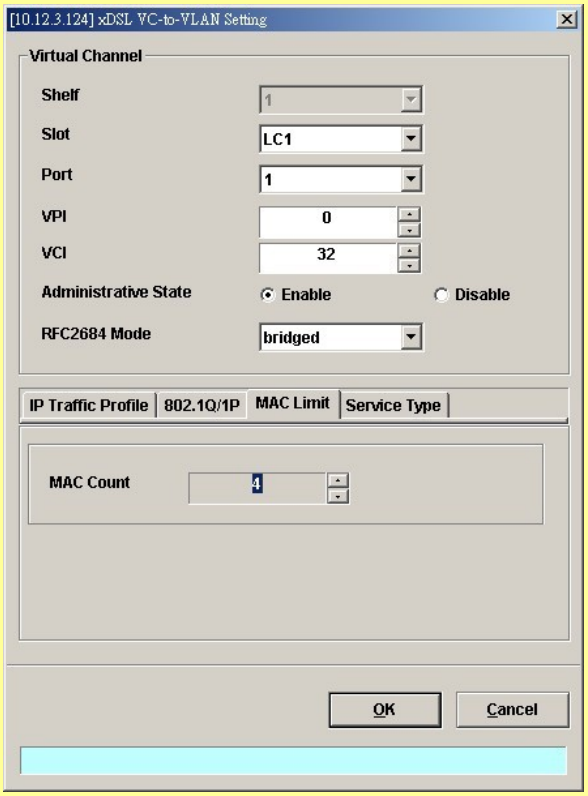
| | |
|---|---|
| Step 3 | Add an IP traffic profile to system. |
| | Follow the procedures in Section “Traffic Profile” to set the following profiles<br>**IP Traffic Profile**<br>1. Figure 5-20 Add xDSL IP Traffic Profile Dialog (Please refer the corresponding OID definition in Table C-107) |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 5-20 Add xDSL IP Traffic Profile Dialog<br>  |

| Step 4 | Create a bidirectional PVC between IP-DSLAM and ATU-R |
|---|---|
| | Follow the procedures in Section "VC-to-VLAN Connection Management" to fill the following dialogs Add xDSL IP Traffic Profile Dialog (Please refer the corresponding OID definition in Table C-108)<br>1. Figure 7-3 xDSL VC-to-VLAN Setting – IP Traffic Dialog<br>2. Figure 7-4 xDSL VC-to-VLAN Setting – 802.1Q/1P Dialog (only for the RFC2684 bridged mode)<br>3. Figure 7-6 xDSL VC-to-VLAN Setting – MAC Limit Dialog (only for the RFC2684 bridged mode)<br>4. Figure 7-8 xDSL VC-to-VLAN Setting – Service Type Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 7-3 xDSL VC-to-VLAN Setting – IP Traffic Dialog (Bridged Mode)<br>  |

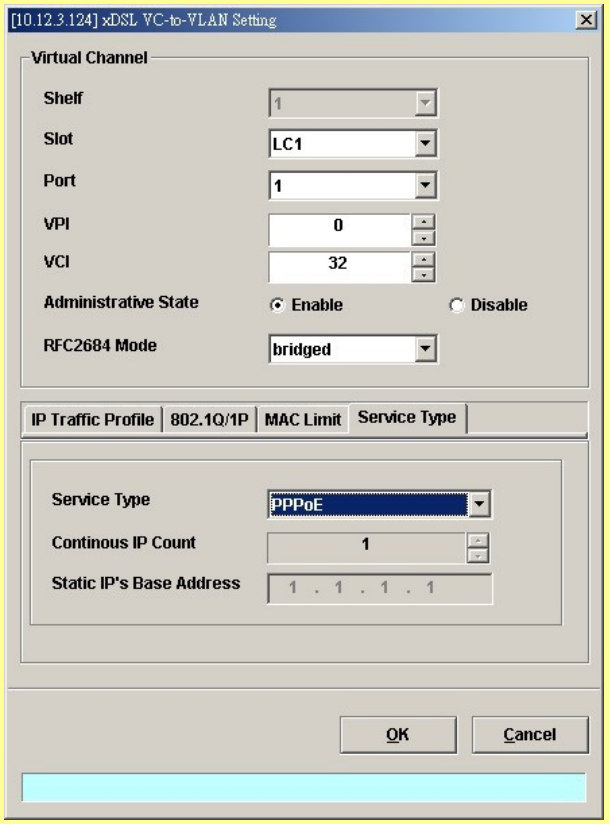
2. Figure 7-4 xDSL VC-to-VLAN Setting – 802.1Q/1P Dialog (only for the RFC2684 bridged mode)

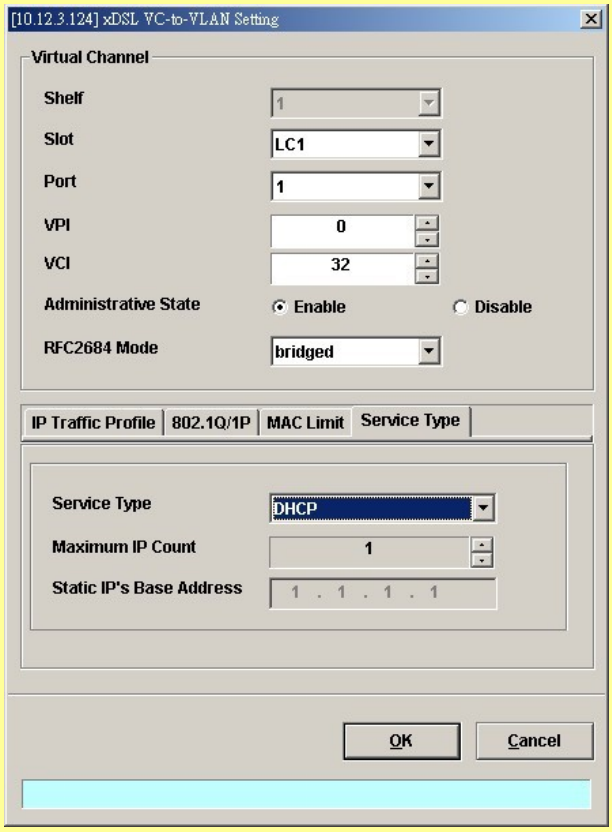



3. Figure 7-6 xDSL VC-to-VLAN Setting – MAC Limit Dialog (only for the RFC2684 bridged mode)



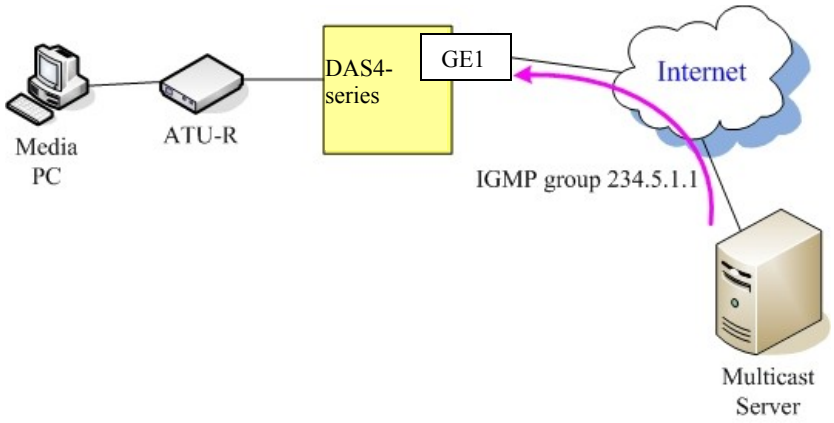
4. Figure 7-8 xDSL VC-to-VLAN Setting – Service Type Dialog



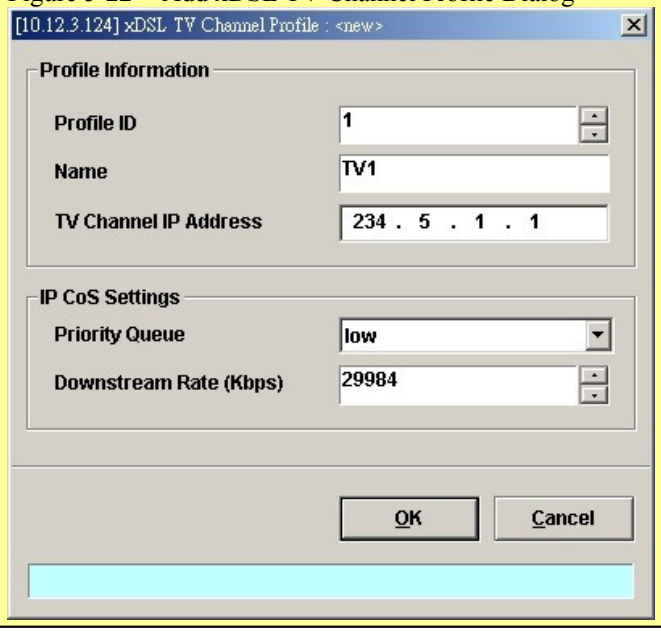
## HowTo 2. How to configure to provide a multicast and bridged data service on the DAS4-series series IP-DSALM

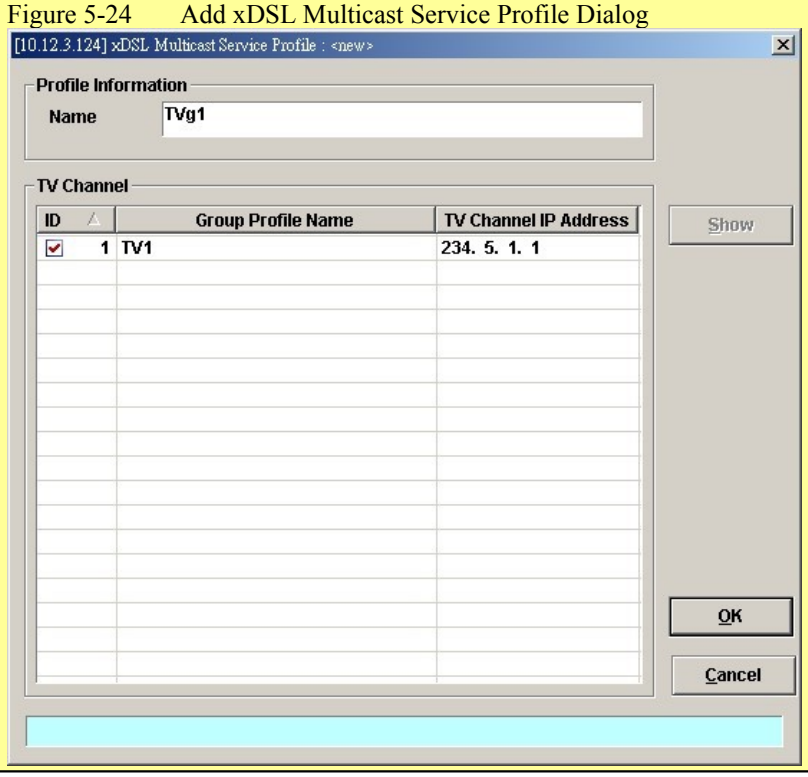
**Environment**

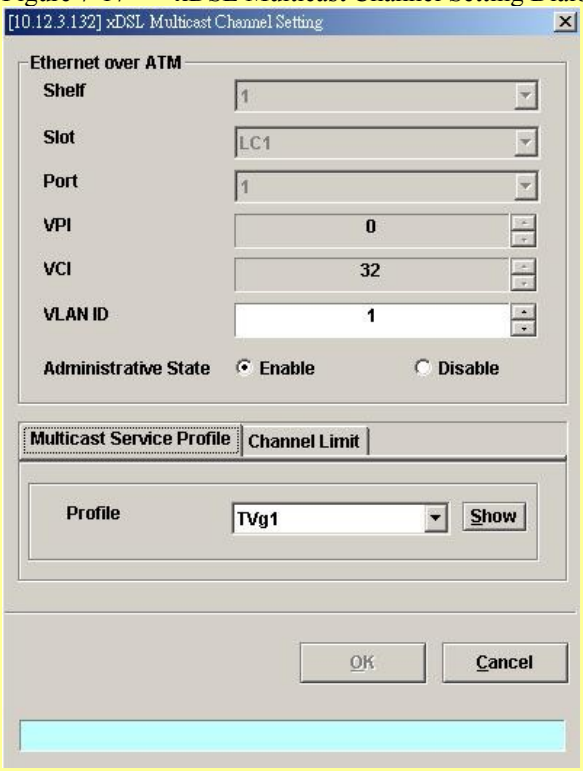


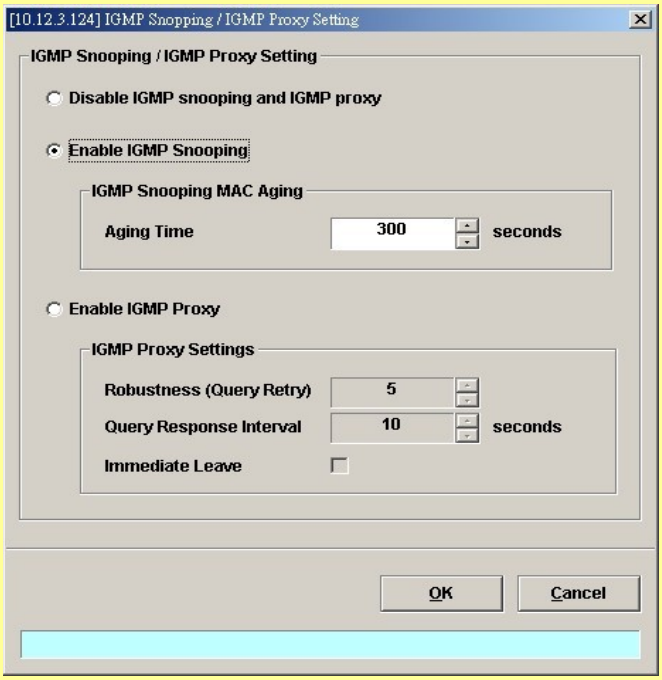
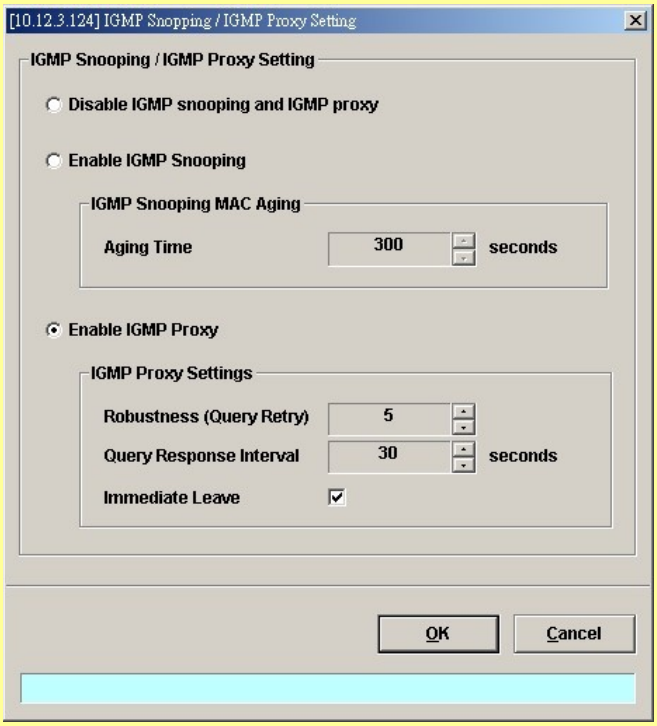

**Set Up via AMS LCT**

| Step | Procedure and example of parameter value (Procedure with blue background, Example with yellow background) |
|---|---|
| Step 1 | Add a TV (multicast) channel profile to system. |
| | Follow the procedures in Section "TV Channel Profile" to set the following profiles<br>**TV Channel Profile** (Please refer the corresponding OID definition in Table C-109)<br>1. Figure 5-22 Add xDSL TV Channel Profile Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 5-22 Add xDSL TV Channel Profile Dialog |



| Step 2 | Create a multicast service profile and assign multicast channel profile to a service profile. |
|---|---|
| | Follow the procedures in Section “Multicast Service Profile” to set the following profiles<br>**Multicast Service Profile** (Please refer the corresponding OID definition in Table C-110)<br>1. Figure 5-24 Add xDSL Multicast Service Profile Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>**1.** Figure 5-24 Add xDSL Multicast Service Profile Dialog<br>  |

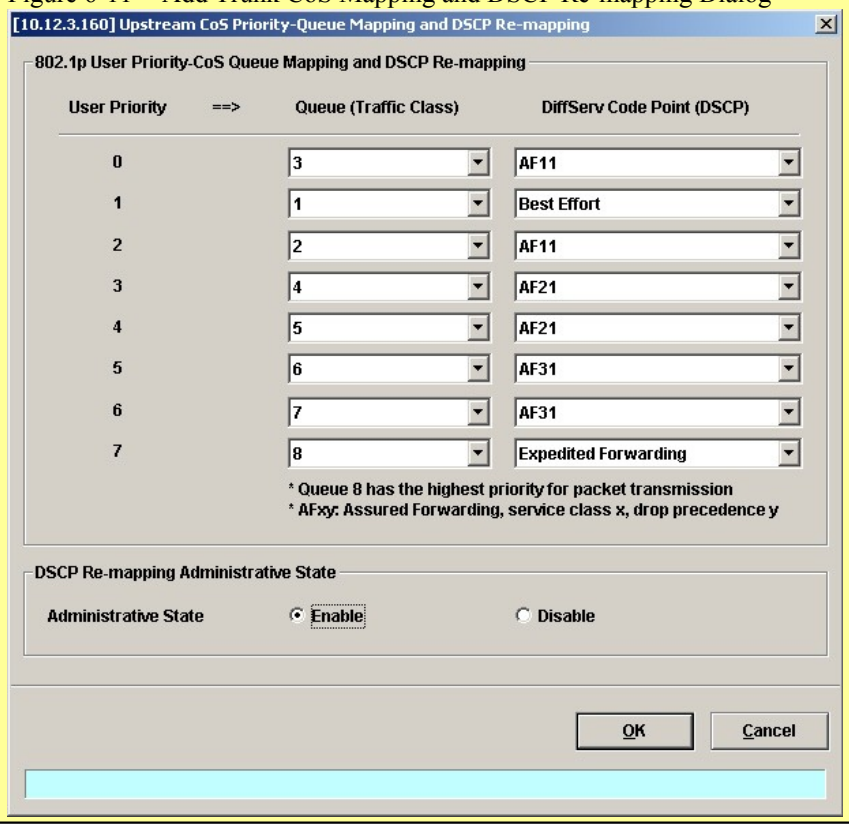
| | |
|---|---|
| Step 3 | LCT setup as same as step 1~4 in HowTo 1 |
| Step 4 | Create a mcau (multicast conditional access unit) on xDSL subscriber. |
| | Follow the procedures in Section "Multicast Channel Configuration" to fill the following dialogs (Please refer the corresponding OID definition in Table C-111)<br>1. Figure 7-17 xDSL Multicast Channel Setting Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 7-17 xDSL Multicast Channel Setting Dialog<br>  |

| | |
|---|---|
| Step 5 | Enable IGMP snoopy function on IP-DSLAM. |
| | Follow the procedures in Section "IGMP snooping/IGMP proxy Configuration" to fill the following dialogs (Please refer the corresponding OID definition in Table C-112)<br>1. Figure 7-18 IGMP Snooping / IGMP Proxy Setting Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 7-18 IGMP Snooping / IGMP Proxy Setting Dialog<br>  <br><br>  <br> |

## HowTo 3. How to configure to provide a Trunk CoS Mapping on the DAS4-series

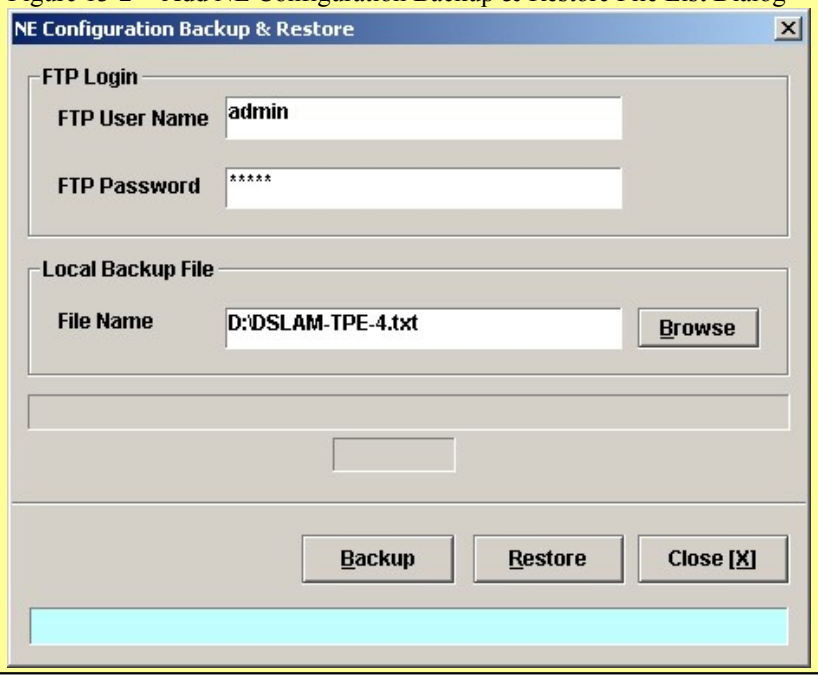
## series IP-DSALM

**Set Up via AMS LCT**

| Step | Procedure and example of parameter value (Procedure with blue background, Example with yellow background) |
|---|---|
| Step 1 | Add a Trunk CoS Mapping and DSCP Re-mapping to system. |
| | Follow the procedures in Section "CoS Configuration" to fill the following dialogs (Please refer the corresponding OID definition in Table C-113)<br>1. Figure 6-11 Add Trunk CoS Mapping and DSCP Re-mapping Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 6-11 Add Trunk CoS Mapping and DSCP Re-mapping Dialog<br>  |

## HowTo 4. How to backup and restore the NE Configuration

## Backup and Restore the NE Configuration via AMS LCT

| Step | Procedure and example of parameter value (Procedure with blue background, Example with yellow background) |
|---|---|
| Step 1 | Backup the configuration from the NE and restore the configuration to the NE. |
| | Follow the procedures in Section "NE Configuration Backup and Restore" to fill the following dialogs.<br>1. Figure 13-2 Add NE Configuration Backup & Restore File List Dialog |
| | **Example:**<br>Please see the example setting as follows.<br>1. Figure 13-2 Add NE Configuration Backup & Restore File List Dialog<br>  |

It is noted that the NE configuration is saved in "default.cfg" on the NE. The LCT allows to backup the "default.cfg" and save it with a different filename on the local host. In the mean time, the LCT also allows to restore the "default.cfg" with a NE configuration different filename on the local host.

**Set Up via CLI**

NE provides NC/ADSL LC backup and restore related CLI commands to backup or restore the NE configuration via FTP. The backup procedures are as following:

**Step 1** Open the DOS prompt window (or environment) on personal computer (PC).

**Step 2** Go to the directory where the backup file is saved, and then login the

DAS4-Series by FTP

**Step 3** Get the configuration file from NE to the target partition via FTP by following commands:

ftp> **cd cfg:**

ftp> **get default.cfg**

or

ftp> **put default.cfg**

It is noted that login device via FTP must be used the read-write authorization. The default username/password is **admin/admin**.

It is noted that the NE configuration is saved in “default.cfg” on the NE. The operator can backup the “default.cfg” and save it with a different filename on the local host. However, the operator has to restore (by the ftp “put” command) the NE configuration with filename of “default.cfg”.

The following example shows how to backup the configurations from NE21.

```
1.
2.D:\>ftp 10.12.3.160
3.Connected to 10.12.3.160.
4.220-========================================================================-
5.220-              Welcome to the IP-DSLAM FTP Server                 -
6.220-                                                                 -
7.220- CAUTION: It's your responsibility to use the FTP service correctly -
8.220-          , please put the right files into the right file system.  -
9.220 ========================================================================-
10.User (10.12.3.160:(none)): admin
11.331 Password required
12.Password:
13.230 User logged in
14.ftp> cd cfg:
15.250 Changed directory to "cfg:/"
16.ftp> get default.cfg D:\DSLAM-TPE-4.txt
17.200 Port set okay
18.150 Opening BINARY mode data connection
19.226 Transfer complete
20.ftp: 152231 bytes received in 0.45Seconds 335.31Kbytes/sec.
21.ftp> bye
22.221 Bye...see you later
23.
24.D:\>
```

The following example shows how to restore the configurations to NE.

25.
26.D:\>**ftp 10.12.3.160**
27.Connected to 10.12.3.160.
28.220-========================================================================-
29.220- Welcome to the IP-DSLAM FTP Server -
30.220- -
31.220- CAUTION: It's your responsibility to use the FTP service correctly -
32.220- , please put the right files into the right file system. -
33.220 ========================================================================-
34.User (10.12.3.160:(none)): **admin**
35.331 Password required
36.Password:
37.230 User logged in
38.ftp> **cd cfg:**
39.250 Changed directory to "cfg:/"
40.ftp> **put DSLAM-TPE-4.cfg default.cfg**
41.200 Port set okay
42.150 Opening BINARY mode data connection
43.226- CAUTION:Please wait for 120 seconds or check the Flash LED -
44.226 Transfer complete
45.ftp: 152231 bytes sent in 0.80Seconds 191.01Kbytes/sec.
46.ftp> **bye**
47.221 Bye...see you later

**Table C-103 The mapping of ADSL line profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Profile Name | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.1 | adslLineConfProfileName | This specifies the ADSL line profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |

| | | | | |
|---|---|---|---|---|
| Upstream Min Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.25<br>.1.3.6.1.2.1.10.94.1.1.14.1.26 | adslAturChanConfFastMinTxRate (see Note [1])<br>or<br>adslAturChanConfInterleaveMinTxRate (see Note [2]) | Defines upstream minimum transmit rate, this parameter is available for adaptive and dynamic rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 2976 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Upstream Max Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.27<br>.1.3.6.1.2.1.10.94.1.1.14.1.28 | adslAturChanConfFastMaxTxRate (see Note 1)<br>or<br>adslAturChanConfInterleaveMaxTxRate (see Note 2) | Defines upstream maximum transmit rate, this parameter is available for adaptive and dynamic rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 2976 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Downstream Min Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.11<br>.1.3.6.1.2.1.10.94.1.1.14.1.12 | adslAtucChanConfFastMinTxRate (see Note 1)<br>or<br>adslAtucChanConfInterleaveMinTxRate (see Note 2) | Defines downstream minimum transmit rate, this parameter is available for adaptive and dynamic rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 29984 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Downstream Max Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.13<br>.1.3.6.1.2.1.10.94.1.1.14.1.14 | adslAtucChanConfFastMaxTxRate (see Note 1)<br>or<br>adslAtucChanConfInterleaveMaxTxRate (see Note 2) | Defines downstream maximum transmit rate, this parameter is available for adaptive and dynamic rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 29984 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Upstream Min Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.25<br>.1.3.6.1.2.1.10.94.1.1.14.1.26 | adslAturChanConfFastMinTxRate (see Note 1)<br>or<br>adslAturChanConfInterleaveMinTxRate (see Note 2) | Defines upstream transmit rate, this parameter is available for fixed rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 2976 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Downstream Min Rate | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.11<br>.1.3.6.1.2.1.10.94.1.1.14.1.12 | adslAtucChanConfFastMinTxRate (see Note 1)<br>or<br>adslAtucChanConfInterleaveMinTxRate (see Note 2) | Defines downstream transmit rate, this parameter is available for fixed rate mode.<br>**Type:** Mandatory<br>**Valid values:** 64 ~ 29984 (multiple of 32 kbps)<br>**Default value:** 64 kbps (due to profile generated) |
| Upstream Downshift Time | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.24 | adslAturConfMinDownshiftTime | It defines the minimum time interval during which the upstream noise margin should stay below the Downshift SNR below the ATU-R triggers the SRA process to decrease the line rate.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 16384 (seconds)<br>**Default value:** 0 sec (due to profile generated) |
| Upstream Upshift Time | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.23 | adslAturConfMinUpshiftTime | It defines the minimum time interval during which the upstream noise margin should stay above the Upshift SNR before the ATU-R triggers the SRA process to increase the line rate.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 16384 (seconds)<br>**Default value:** 0 sec (due to profile generated) |
| Downstream Downshift Time | rfc2662 | .1.3.6.1.2.1.10.94.1.1.14.1.10 | adslAtucConfMinDownshiftTime | It defines the minimum time interval during which the downstream noise margin should stay below the Downshift SNR before the ATU-C triggers the SRA process to decrease the line |

[1]Note . Applicable when the channel mode is fast path.

[2]Note . Applicable when the channel mode is interleaved path.

[3]Note . Applicable when applying to set the upstream SNR margin.

[4]Note . Applicable when applying to set the downstream SNR margin.

**Table C-104 The mapping of PM Threshold profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Name | rfc2662 | .1.3.6.1.2.1.10.94.1.1.15.1.1 | adslLineAlarmConfProfileName | This specifies the PM Threshold (performance alarm) profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| 15-Min/CO: ES<br>or<br>15-Min/RT: ES | rfc2662 | .1.3.6.1.2.1.10.94.1.1.15.1.6<br>or<br>.1.3.6.1.2.1.10.94.1.1.15.1.15 | adslAtucThresh15MinESs<br>or<br>adslAturThresh15MinESs | When the keyword "*near*" is set,<br>This field indicates the threshold of Errored Seconds (ES) on the CO (Central Office) side during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br><br>When the keyword "*far*" is set,<br>This field indicates the threshold of Errored Seconds (ES) on the RT side (CPE) during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 900<br>**Default value:** 0 (due to profile generated) |
| 15-Min/CO: SES<br>or<br>15-Min/RT: SES | rfc3440 | .1.3.6.1.2.1.10.94.3.1.23.1.2<br>or<br>.1.3.6.1.2.1.10.94.3.1.23.1.4 | adslAtucThreshold15MinSesL<br>or<br>adslAturThreshold15MinSesL | When the keyword "*near*" is set,<br>This field indicates the threshold of Errored Seconds (SES) on the CO (Central Office) side during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br><br>When the keyword "*far*" is set,<br>This field indicates the threshold of Severely Errored Seconds (SES) on the RT side (CPE) during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 900<br>**Default value:** 0 (due to profile generated) |
| 15-Min/CO: UAS<br>or<br>15-Min/RT: UAS | rfc3440 | .1.3.6.1.2.1.10.94.3.1.23.1.3<br>or<br>.1.3.6.1.2.1.10.94.3.1.23.1.5 | adslAtucThreshold15MinUasL<br>or<br>adslAturThreshold15MinUasL | When the keyword "*near*" is set,<br>This field indicates the threshold of Unavailable Seconds (UAS) on the CO (Central Office) side during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br><br>When the keyword "*far*" is set,<br>This field indicates the threshold of Unavailable Seconds (UAS) on the RT side (CPE) during the last 15 minutes. When the threshold is set to 10, the NE launches a trap (alarm) if the count of specific errors exceeds 10 during the last 15 minutes.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 900 |

**Table C-105 The mapping of Traffic Policing profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Name | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.3.1.1.1 | trafficPolicingName | This specifies the traffic policing profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| Upstream CIR (Mbps) | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.3.1.1.2 | trafficPolicingCIR | Defines the committed information rate of traffic policing profile.<br>**Type:** Mandatory<br>**Valid values:** 1 ~ 1000 (mbps) |
| Action to Out-profile Packets | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.3.1.1.4 | trafficPolicingAction | This identifies to which value will DSCP be replace, drop packets or do nothing when user's upstream traffic exceeds CIR.<br>**Type:** Mandatory<br>**Valid values:** no-action(0) \| drop(1) \| BE(2) \| AF11(3) \| AF12(4) \| AF13(5) \| AF21(6) \| AF22(7) \| AF23(8) \| AF31(9) \| AF32(10) \| AF33(11) \| AF41(12) \| AF42(13) \| AF43(14) \| EF(15) |

**Table C-106 The mapping of ADSL port configuration parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Administrative State | rfc2233 | .1.3.6.1.2.1.2.2.1.7 | ifAdminStatus | This specifies the desired state of the interface.<br>**Type:** Mandatory<br>**Valid values:** Enable \| Disable |
| Line Profile | rfc2662 | .1.3.6.1.2.1.10.94.1.1.1.1.4 | adslLineConfProfile | This specifies the ADSL line profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', ' _', '.', '@'). |
| PM Threshold (Profile) | rfc2662 | .1.3.6.1.2.1.10.94.1.1.1.1.5 | adslLineAlarmConfProfile | This specifies the PM Threshold (performance alarm) profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', ' _', '.', '@'). |
| Traffic Policing (Profile) | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.1.1.1.1 | askeyQoSLineTrafficPolicing | This specifies the traffic policing profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', ' _', '.', '@'). |

**Table C-107 The mapping of IP Traffic profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Name | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.2.2.1.1 | ipTrafficProfileName | This specifies the IP traffic profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| Upstream Rate (Kbps) | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.2.2.1.2 | ipTrafficProfileUsRateLimit | This specifies the rate limit for the upstream IP traffic on the PVC of a specific ADSL port where the IP traffic profile is applied to.<br>**Type:** Mandatory<br>**Valid values:** nolimit \| 32k \| 64k \| 128k \| 256k \| 384k \| 512k \| 768k |
| Downstream Rate (Kbps) | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.2.2.1.3 | ipTrafficProfileMaxDsRate | This specifies the rate limit for the downstream IP traffic on the PVC of a specific ADSL port where the IP traffic profile is applied to.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 29984 kbps (multiple of 32 kbps) |
| Downstream Priority Queue | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.2.2.1.4 | ipTrafficProfileDsPriority | This defines the downstream priority of the PVC of a specific ADSL port where the IP traffic profile is applied to. It is noted that the lower the priority of the applied PVC, the higher the chance to get drop due to traffic congestion.<br>**Type:** Mandatory<br>**Valid values:** low(0) \| medium(1) \| high(2) \| highest(3) |
| Downstream Broadcast | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.2.2.1.6 | ipTrafficProfileDsBcastFilter | This specifies to drop or to forward downstream broadcast on the PVC of a specific ADSL port where the IP traffic profile is applied to.<br>**Type:** Mandatory<br>**Valid values:** drop(2) \| forward(3) |

**Table C-108 The mapping of xDSL VC-to-VLAN Setting related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| VPI | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.1 | vcVlanEntryVpi | Defines the VPI (Virtual Path Identifier) value.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 255 |
| VCI | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.2 | vcVlanEntryVci | Defines the VCI (Virtual Channel Identifier) value.<br>**Type:** Mandatory<br>**Valid values:** 1 ~ 65535 (1 ~ 31 are reserved) |
| Administrative State | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.13 | vcVlanEntryRowStatus | This specifies the desired state of the vc-vlan connection.<br>**Type:** Mandatory<br>**Valid values:** Enable \| Disable |
| RFC2684 Mode | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.6 | vcVlanEntryRfc2684Mode | This specifies the RFC2684 encapsulation mode for the packet on the PVC.<br>**Type:** Mandatory<br>**Valid values:** routed mode \| bridged mode |
| IP Traffic Profile | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.8 | vcVlanEntryIPTrafficProfile | Defines the created IP traffic profile name.<br>**Type:** Mandatory<br>**Valid values:** The name of "IP traffic profile" |
| 802.1Q/1P: VLAN ID | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.3 | vcVlanEntryVlanId | This specifies the VLAN-ID value of VLAN-tag to be added to the upstream traffic on the PVC.<br>**Type:** Mandatory<br>**Default value:** 1<br>**Valid values:** 1 ~ 4093 |
| 802.1Q/1P: User Priority | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.4 | vcVlanEntry8021pPriority | This specifies the User Priority of VLAN-tag to be added to the upstream traffic on the PVC when it is in the RFC 2684 bridged mode.<br>**Type:** Mandatory<br>**Default value:** 0<br>**Valid values:** 0 ~ 7 (low ~ high) |
| 802.1P:<br>User Priority | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.4 | vcVlanEntry8021pPriority | This specifies the User Priority of VLAN-tag to be added to the upstream traffic on the PVC when it is in the RFC 2684 routed mode.<br>**Type:** Mandatory<br>**Default value:** 0<br>**Valid values:** 0 ~ 7 (low ~ high) |
| Next-hop Name | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.7 | vcVlanEntryRoutedModeNexthop | It specifies the Next-hop name.<br>The NE will use ARP to get its corresponding MAC address. The NE then use this MAC address as the MAC DA of upstream Ethernet frame when the VC-VLAN connection is in the RFC 2684 routed mode.<br>**Type:** Mandatory<br>**Valid values:** The name of "ISP Server" |
| MAC Limit: MAC Count | askeyVcVlan | .1.3.6.1.4.1.3646.1300.2.11.1.1.5 | vcVlanEntryMacLimit | Defines the limit of MAC address learned on the applied PVC when it is in the RFC 2684 bridged mode.<br>It is noted that each xDSL line port allows maximum of 8 MAC |

**Table C-109 The mapping of TV Channel Profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Profile ID | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.1.2.1.1 | mProfileId | This specifies the multicast channel profile identifier.<br>**Type:** Mandatory<br>**Valid values:** |
| Name | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.1.2.1.2 | mProfileName | This specifies the multicast channel profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| TV Channel IP Address | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.1.2.1.3 | mProfileIpAddr | This specifies class D IP address of the multicast stream.<br>**Type:** Mandatory<br>**Valid values:** 224.0.1.0 ~ 239.255.255.255 |
| Priority Queue | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.1.2.1.5 | mProfilePriority | Defines the downstream forwarding priority of the multicast stream.<br>**Type:** Mandatory<br>**Valid values:** low(0)\| medium(1)\| high(2)\| highest(3) |
| Downstream Rate (Kbps) | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.1.2.1.4 | mProfileRate | Defines the downstream transmission rate limit of multicast stream.<br>**Type:** Mandatory<br>**Valid values:** 0 ~ 29984 kbps |

**Table C-110 The mapping of Multicast Service Profile related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Name | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.3.2.1.1 | mcastServiceProfileName | This specifies the multicast service profile name<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| TV Channel | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.3.2.1.2 | mcastServiceProfileBitMap | This specifies the multicast group profile name. Each service profile may book a set of 800 program at most , we use 100 octets to save what it books.<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |

**Table C-111 The mapping of Multicast Channel Configuration related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| VPI | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.1 | mConfigVpi | Defines the VPI (Virtual Path Identifier) value for multicast channel.<br>**Type:** Mandatory<br>**Default value:** 8<br>**Valid values:** 0 ~ 255 |
| VCI | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.2 | mConfigVci | Defines the VCI (Virtual Channel Identifier) value for multicast channel..<br>**Type:** Mandatory<br>**Default value:** 35<br>**Valid values:** 1 ~ 65535 (1 ~ 31 are reserved) |
| VLAN ID | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.3 | mConfigVlanId | This specifies the VLAN-ID value of VLAN-tag to be added to the upstream IGMP report packets on the PVC.<br>**Type:** Mandatory<br>**Default value:** 1<br>**Valid values:** 1 ~ 4093 |
| Administrative State | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.6 | mConfigRowStatus | This specifies the desired state of the interface.<br>**Type:** Mandatory<br>**Valid values:** Enable \| Disable |
| Multicast Service Profile | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.5 | mConfigServiceProfile | This specifies the multicast service profile.<br>Internally, each line may book 256 program set, we use 256 bits to save what they booked<br>**Type:** Mandatory<br>**Valid values:** String of up to 32 characters ('0'~'9', 'A'~'Z', 'a'~'z', '-', '_', '.', '@'). |
| Channel Limit: Channel Limit | askeyMcast | .1.3.6.1.4.1.3646.1300.2.5.2.1.4 | mConfigStreamNum | This specifies the allowed number of multicast streams to be forwarded via the VC-to-VLAN connection.<br>**Type:** Mandatory<br>**Valid values:** 1~ 5 |

**Table C-112 The mapping of IGMP snooping/IGMP proxy Configuration related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| Disable IGMP snooping and IGMP proxy<br>/ Enable IGMP snooping<br>/ Enable IGMP proxy | askeySystemMib | .1.3.6.1.4.1.3646.1300.2.1.16.3 | askeySystemManagementIgmp | These three parameters correspond to the same OID "askeySystemManagementIgmp"<br>As their names imply, the operator selects one among them.<br>**Type:** Mandatory<br>**Valid values:** enableIgmpsnoop(1), enableIgmpproxy(2),disableIgmp(3) |
| Enable IGMP snooping:<br>MAC Aging Time (seconds) | askeyIgmpSnoop | .1.3.6.1.4.1.3646.1300.2.3.1.3 | askeyMcastAgingTime | Defines the IGMP snooping aging time which the timeout period in seconds for aging out Multicast Groups dynamically learned with IGMP Snooping. Note that aging operates on a per interface per VLAN per multicast group basis. This interval is also used to age out ports that have received IGMP Router Query PDUs on a per VLAN basis.<br>**Type:** Mandatory<br>**Valid values:** 30 ~ 3600 (sec.)<br>**Default value:** 300 (sec.) |
| Enable IGMP proxy:<br>Robustness(Query Retry) | askeyIGMPproxy | .1.3.6.1.4.1.3646.1300.2.14.2 | askeyIgmpProxyRobust | Defines the retry count for the NE to re-send IGMP Query message to the subscriber in the case that the subscriber does not respond.<br>After sending "retry count" of IGMP Query messages, if he NE does not receive any response, the NE will treat the subscriber as 'leave' and hence will stop forwarding the multicast stream to the particular link.<br>**Type:** Mandatory<br>**Valid values:** 1 ~ 5<br>**Default value:** 3 (count.) |
| Enable IGMP proxy:<br>Query Response Interval | askeyIGMPproxy | .1.3.6.1.4.1.3646.1300.2.14.3 | askeyIgmpProxyQueryInterval | This specifies the period between the NE send 2 consecutive IGMP queries to the xDSL subscriber.<br>**Type:** Mandatory<br>**Valid values:** 1 ~ 30 (sec.)<br>**Default value:** 30 (sec.) |
| Enable IGMP proxy:<br>Immediate Leave | askeyIGMPproxy | .1.3.6.1.4.1.3646.1300.2.14.4 | askeyIgmpProxyImmediatedLeaveEnable | This specifies to enable the "immediate leave" function or not..<br>**Type:** Mandatory<br>**Valid values:** Enable \| Disable |

**Table C-113 The mapping of Trunk CoS Mapping and DSCP Re-mapping related parameters and their corresponding OID**

| Parameters | MIB File | OID-number | OID-Name | Task |
|---|---|---|---|---|
| User Priority | askeySystemMib | .1.3.6.1.4.1.3646.1300.2.1.18.1.1.1 | askeyCosQueueMapping8021p | This indicates the 802.1p user priority as configured in the VC-to-VLAN configuration<br>**Type:** Mandatory<br>**Valid values:** 0~7 |
| Queue (Traffic Class) | askeySystemMib | .1.3.6.1.4.1.3646.1300.2.1.18.1.1.2 | askeyCosQueueIndex | For a specified User Priority (802.1p) value of received Ethernet packet, this indicates the corresponding CoS queue on the uplink trunk GE port<br>**Type:** Mandatory<br>**Valid values:** 1~8 |
| DiffServ Code Point (DSCP) | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.2.2.1.1 | diffServDSCP | For a specified User Priority (802.1p) value of received subscriber's Ethernet packet, this indicates the new DSCP value on the subscriber's IP frame to be forwarded via the uplink trunk GE port.<br>**Type:** Mandatory<br>**Valid values:** be ( 0 ) , af11 ( 1 ) , af12 ( 2 ) , af13 ( 3 ) , af21 ( 4 ) , af22 ( 5 ) , af23 ( 6 ) , af31 ( 7 ) , af32 ( 8 ) , af33 ( 9 ) , af41 ( 10 ) , af42 ( 11 ) , af43 ( 12 ) , ef ( 13 ) |
| Administrative State | ASKEY-QOS-MIB | .1.3.6.1.4.1.3646.1300.2.16.2.1 | diffServAdminStatus | Enable or disable the DSCP Re-mapping function.<br>**Type:** Mandatory<br>**Valid values:** Enable(0) \| Disable(2) |